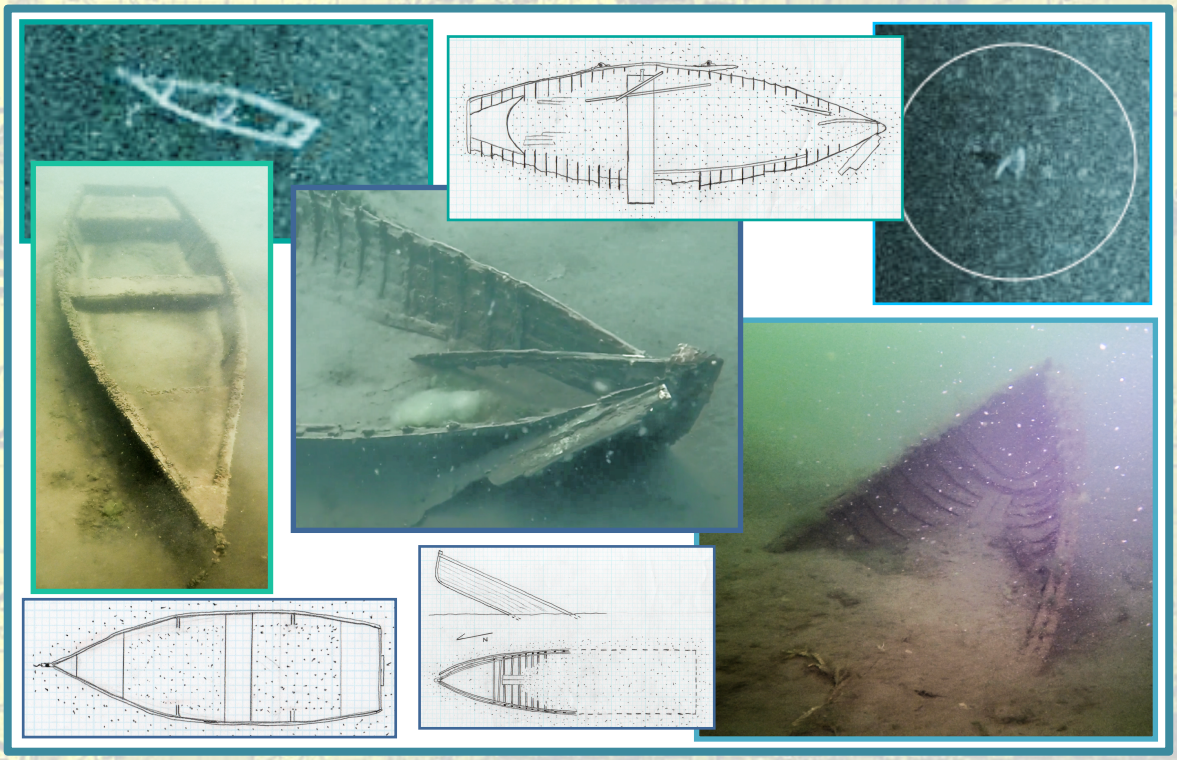
MARITIME HERITAGE MINNESOTA

Ann Merriman
Christopher Olson

Christmas Lake Sonar Survey and Nautical Archaeology Project Report



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Acknowledgments

Maritime Heritage Minnesota (MHM) thanks Dr. Natalie Rosen for her generous donation that funded this project; without this support, the work would not have been undertaken. Dr. Rosen's encouragement over the years has been greatly valued by MHM. We thank Bruce Koenen of the Office of the State Archaeologist for his fast turn-around of site form submissions. MHM could not have completed this project without the in-kind support of volunteer divers Josh Knutson and Kelly Nehowig; we thank these talented and ethical men for their time and skill. We also thank our volunteers Mark Slick, Ed Nelson, and Betty Lloyd for their constant support. Many thanks to Dave Egloff for permission to use his family photographs, and to the Westonka Historical Society and the Minnesota Historical Society image use permission. This project could not have been completed in a timely fashion without the consideration of MHM's Chair and Commodore Michael F. Kramer for the on-land storage of MHM's boat. Lastly, MHM thanks our Board of Trustees Mike, Deb Handschin, and Steve Hack for their continued support.



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MHM IS A 501.(c).3 NON-PROFIT CORPORATION DEDICATED TO THE DOCUMENTATION, CONSERVATION, AND PRESERVATION OF MINNESOTA'S FINITE MARITIME CULTURAL RESOURCES

"...grants have allowed a small St. Paul-based nonprofit, Maritime Heritage Minnesota (MHM), to re-establish the discipline of underwater archaeology in Minnesota. Without this support, MHM could not have conducted its groundbreaking nautical archeological and maritime historical research."

~Steve Elliott, Former Minnesota Historical Society CEO and Director, January 2015

Introduction

Wrecks and the artifacts associated with them tell a story. Removing or otherwise disturbing artifacts, treating them as commodities that can be sold, obliterates that story. Nautical archaeological and maritime sites are finite, and are significant submerged cultural resources. Nautical, maritime, underwater, maritime terrestrial – Maritime Heritage Minnesota's (MHM) deals with all of these types of sites throughout the State of Minnesota. MHM's Mission is to document, conserve, preserve, and when necessary, excavate these finite cultural resources where the welfare of the artifact is paramount. MHM is concerned with protecting our underwater and maritime sites – our shared Maritime History – for their own benefit in order for all Minnesotans to gain the knowledge that can be obtained through their study. MHM's study of wrecks does not include the removal of artifacts or damaging the sites in any way. MHM does not raise wrecks or 'hunt' for 'treasure'. Submerged archaeological sites in Minnesota are subject to the same State statues as terrestrial sites: the Minnesota Field Archaeology Act (1963), Minnesota Historic Sites Act (1965), the Minnesota Historic District Act (1971), and the Minnesota Private Cemeteries Act (1976) if human remains are associated with a submerged site. Further, the case of *State v. Bollenbach* (1954) and the Federal Abandoned Shipwrecks Act of 1987 provide additional jurisdictional considerations when determining State oversight and "ownership" of resources defined by law as archaeological sites (Marken, Ollendorf, Nunnally, and Anfinson 1997, 3-4). Therefore, just like terrestrial archaeologists working for the State or with contract firms, underwater archaeologists are required to have the necessary education, appropriate credentials, and hold valid licenses from the Office of the State Archaeologist (OSA).

MHM completed a remote-sensing side and down-imaging sonar survey of Christmas Lake in early May 2020, with supplemental scanning completed in mid-June. Prior to MHM's comprehensive remote sensing survey, there were no recognized nautical archaeological sites on the lake bottom, although 2 wrecks were known to sport divers. After sonar data analysis, MHM recognized 64 anomalies that have or will require investigation by SCUBA to determine their nature, or additional targeted sonar survey that would produce more detailed images for clarification purposes. Upon the completion of the Christmas Lake Sonar Survey and Nautical Archaeology Project (CLSSNA), MHM identified 13 wrecks, 8 maritime sites/cultural resources, 8 'other' objects, 1 log, tree branches, and 32 anomalies await identification.

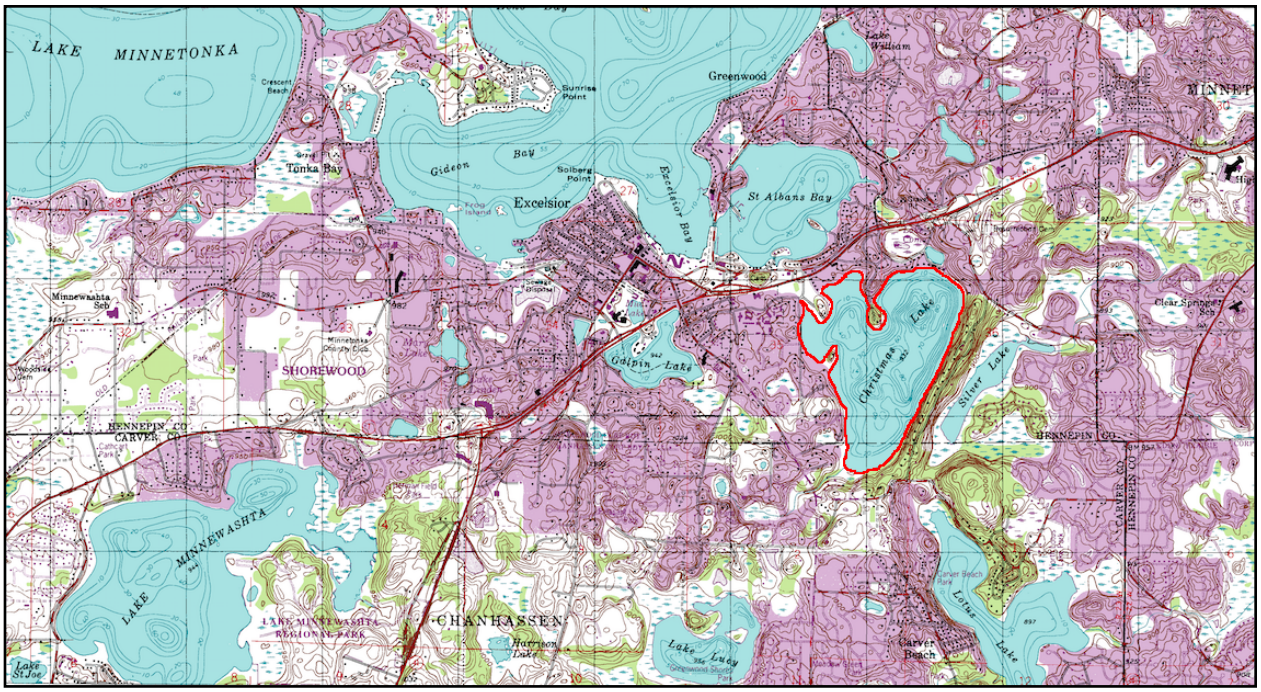
Research Design

MHM completed the remote sensing side and down-imaging sonar scanning survey of the 267.17-acre Christmas Lake on May 2, 2020. MHM has developed a strategy when sonar scanning lakes that produces the clearest images of the bottom and thorough coverage. Firstly, MHM's research boat *Anomaly 51*, with a sonar transducer attached to the hull that extended below the vessel's centerline, scanned the periphery of the lake with a 50-100 foot side-imaging beam on both port and starboard. This 100 or 200-foot area also covered the bottom below the boat with the transducer's down-imaging beam. After the completion of the peripheral scanning, transects running as close to either north-south or east-west as the wind allowed, depending on the shape of the lake. While it is not impossible to scan with the wind hitting the boat from port or starboard in the case of strong winds (and other boat's wakes), the sonar footage that recorded in rough waters can be distorted and of low quality. In the case of Christmas Lake, north-south transects were chosen, with a slight favoring to the west because of NW to SE winds. After sonar data reviewal and the recognition of anomalies that might be wrecks, maritime sites, and other submerged cultural resources, investigation of identified anomalies began on June 3. Additional targeted sonar scanning occurred on June 22, and throughout June and July, MHM and volunteers Kelly Nehowig and Josh Knutson investigated 31 anomalies using SCUBA, and 2 other anomalies were identified without dive reconnaissance.

The 31 anomalies examined using SCUBA during the CLSSNA Project were: A1, A2, A3a-d, A4, A5, A6, A7, A8, A9, A10, A11, A12, A17, A18, A19, A20, A22, A24, A25, A28, A30a-b, A33, A34, A36, A39, A51, A56, A58, A62, A65, and A66. Two anomalies were not dove upon, but their identities were determined from their sonar signatures, when compared to other known anomalies: A14 and A35. Prior to diving, MHM determined that 13 anomalies were wrecks - by their distinctive sonar signatures - prior to diving: A1, A2, A4, A5, A7, A8, A9, A10, A17, A20, A24, A25, and A36. Using data accumulated from the fieldwork as a starting point, MHM conducted research to place newly recognized nautical archaeological sites and anomalies into their historical contexts. Minnesota Archaeological Site Forms were filed with the OSA when appropriate.

Methodology

The methodology used to identify and rudimentarily document underwater archaeological anomalies is straightforward. After sonar data collection, review, and analysis, MHM used the GPS coordinates of a wreck or an anomaly to drop a weighted diver down buoy near the target. The dive boat anchored a short distance away from the buoy and divers geared up for the dive. At any given time, there were between 2 and 3 divers underwater. If the buoy anchor weight landed near and sometimes on the anomaly or wreck, no search for the target was conducted. Considering the unusually clear water of Christmas Lake, the targeted anomaly was easily located by the divers. If a cultural or natural resource was located, the divers photographed and recorded video of the site or object, logged its basic measurements, and examined any obvious attributes.



The location of Christmas Lake in relation to other bodies of water (USGS 1997).

Results of the Christmas Lake Sonar Survey and Nautical Archaeology Project

Archaeology and History

In archaeological terms, the area around Christmas Lake in Hennepin and Carver Counties west of Minneapolis was populated during the Woodland Period as evidenced by the St. Albans Mounds (21-HE-41), 8 conical-shaped or circular tumuli mounds on St. Albans Bay in Lake Minnetonka. These mounds measured from 20 feet to 34 feet in diameter and raised 1 to 4 feet off the ground. Of the 8 mounds, 2 of them were 'partially excavated'. Another prehistoric site (Enochson Site, 21-CR-68) to the southeast overlooked Lotus Lake and consisted of lithics and debitage. In particular, obsidian, tools, smoothing stones, charred bone, large and small animal bones, and charcoal were recorded by a home owner tilling their garden in 1980. Post-Contact sites in the area include the southern portion of Christmas Lake in Carver County where the 'Ghost Town' site of Vineland (21-CR-r) was located; no physical remains of the town have been located, however. Another 'Ghost Town' called Pleasant View (21-CR-n) was located to the southeast of the lake; again, no physical evidence of the town has been identified. Another site consists of a 'find spot' (21-HE-n) of a single artifact identified as a hammer stone at Galpin Lake; no dating information or cultural affiliation was determined for the object (Arzigian and Stevenson 2003, 396; Enochson 1980; Office of the State Archaeologist, ND, 1992; Winchell 1911, 236).

19th Century Settlement. In March 1854, the north end of Lake Caroline, now known as Christmas Lake, was platted to be the "Addition to St. Albans", a neighborhood on Lake Minnetonka. While this section of land was not developed as indicated on the map, it is useful for its detail - and the first post-occupation name - of Christmas Lake. The entire lake was surveyed and platted in 1855 during the United States Geological Survey. The first reference to 'Christmas Lake' that MHM located was a reference to the

popularity of tourism at Lake Minnetonka and great fishing at Christmas Lake. It is obvious the lake was referred to as both Lake Caroline and Christmas Lake at the same time between 1868-1870. In 1870-1871, a 231-acre farm was offered for sale in 'Eden Prairie', now called Chanhassen at the southern end of Lake Caroline (*Minneapolis Daily Tribune* 1870, 1871; *Minneapolis Tribune* 1868). In 1873 and later, maps of Hennepin County depict the name Christmas Lake consistently.



Lake Caroline and the Morris, Lane, and Reid addition to the town of 'St Albans' that did not develop as planned (Morris, Lane, and Reid 1854,Hennepin County Library, p17208coll17_943).

Charles W. Christmas was the first surveyor of the City of Minneapolis - known as 'All Saints' when he was elected to the position. Christmas, along with Colonel Stevens, was one of the first European Americans to stake a land claim west of the Mississippi River in what is now Minneapolis. Christmas also established the locations for the Minnesota Territorial roads out of Minneapolis and St. Anthony. Once the city plan was completed, Christmas worked as the Hennepin County Surveyor for several years. After its initial platting, Christmas Lake's inhabitants owned large tracts of farmland that, over time, were divided into smaller residential plots. The Lake Minnetonka-Christmas Lake area became under scrutiny - and was promoted - by transportation interests in the 1870s. In 1875, "a general celebration was held over the feat" of the catching of a 12 pound 14 ounce 'pickerel' by Mrs. E.C Williams at Christmas Lake. In 1878, 2 rail lines were proposed from Minneapolis to Lake Minnetonka: the Minneapolis & Northwestern Narrow Gauge Line and the Excelsior Branch of the St. Paul Minneapolis & Manitoba Railway. In 1880,a public argument was made in Twin Cities newspapers for a dedicated rail line between Minneapolis and Lake Park on Lower Lake Minnetonka.

Aimed at Twin Cities business leaders, print articles detailed how lucrative the tourist trade could - if the proposed Minneapolis and Lake Park Railroad[1] and the St. Paul/ Minneapolis/Manitoba Railway's extensions to Lake Minnetonka were constructed. In terms of the rail line that served Christmas Lake, in late April 1881, what was referred to as the 'Lyndale Extension' of the St. Paul/Minneapolis/Manitoba destined for Excelsior, had 1,000 workers grading and building the rail line; at Christmas Lake the project engineers expected to encounter hard clay. However, the crew found sand instead and the work spend up. Locomotives were expected to arrive in Excelsior on July 1. In mid-August, it was confirmed that the Lyndale Railway extension would open for passengers on August 19; the completed line was then called the Minneapolis Lyndale & Lake Minnetonka Railway that terminated at the docks of Excelsior (Cooley 1878; Dimond 1881; *Minneapolis Morning Tribune* 1946; *Minneapolis Tribune* 1875, 1880, 1881a-b; *St. Paul Sunday Globe* 1884; Zeese ~1884).



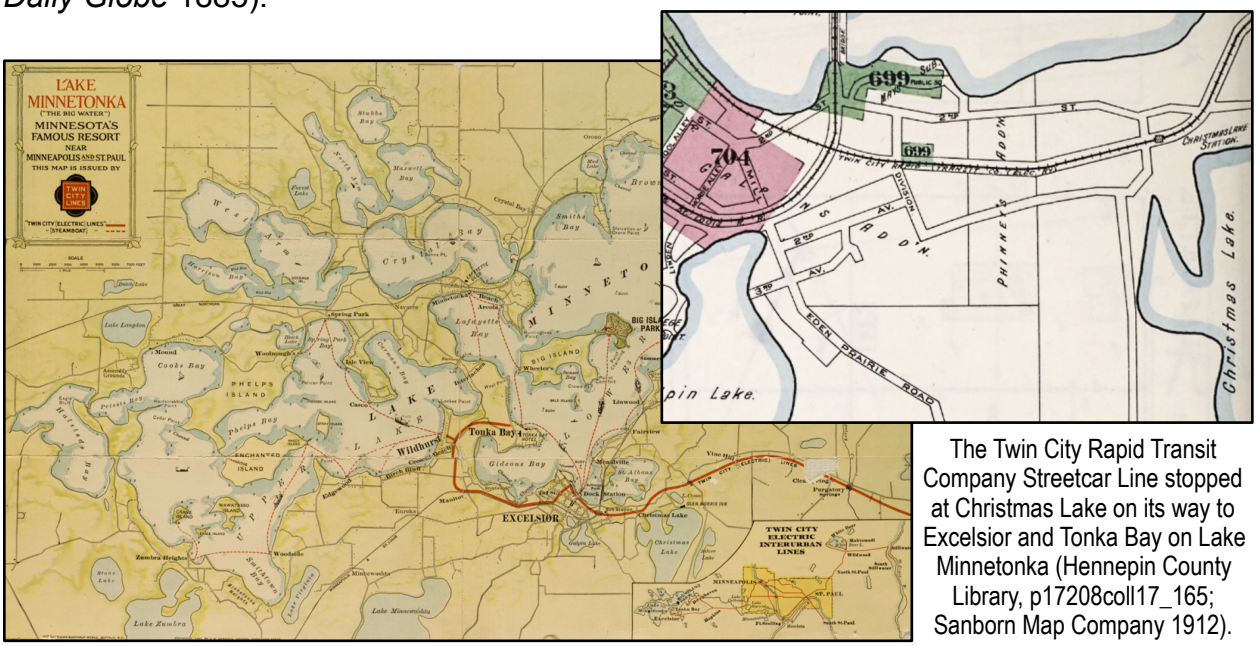
Charles W. Christmas was well-known in the Twin Cities for his surveying work and the initial platting of the City of Minneapolis (*Minneapolis Morning Tribune 1946*; *Minneapolis Sunday Tribune and Star Journal Magazine* 1942).

[1]The 'Minneapolis and Lake Park Railroad' might be referring to the spur off the main line that headed north along Gideon Bay to the Lake Park Hotel in Minnetonka Lake Park, now known as Tonka Bay.



The Minneapolis Lyndale & Lake Minnetonka Railway line; it nearly paralleled the 'Wagon Route to Minneapolis' as shown on the map (Zeese ~1884).

The advancement of rails toward Christmas Lake featured articles that were published by young women touting trips around the Twin Cites and suburbs, naming Christmas Lake among sites not to be missed. The advertisements and completion of the rail line to the western lakes proved a success; on July 4, 1885, the line carried 30,000 people from Minneapolis to Lake Minnetonka, with several stops along the way including Christmas Lake. By 1892, the St. Paul/Minneapolis/Manitoba was leased to and then acquired by J.J. Hill's Great Northern Railway. By 1905, when the Twin City Rapid Transit Company's electric railway replaced the Great Northern Railway from Minneapolis to Excelsior; streetcars brought thousands to the Lake Minnetonka area - with the Christmas Lake and Fair View stops on the north side of Christmas Lake (Cooley 1892; *Minneapolis Tribune* 1881c; Sanborn Map Company 1912, 698; *St. Paul Daily Globe* 1885).



The Twin City Rapid Transit Company Streetcar Line stopped at Christmas Lake on its way to Excelsior and Tonka Bay on Lake Minnetonka (Hennepin County Library, p17208coll17_165; Sanborn Map Company 1912).

Glen Morris Cottage

Charles A. F. and Mary E. Morris were Irish immigrants who lived in St Paul in the 1850s. Charles was a Civil Engineer who, in the 1860s, was an officer for the St. Paul and Pacific Railway. Charles and Mary purchased a large tract of land on the north end of Christmas Lake by 1873; by 1879, they had acquired additional large portions of land north, northeast, and east of the lake. A 39.93 acre parcel of land acquired from Charles F. Adams on Christmas Lake's north shore included a lake cottage, named 'Glen Morris Cottage', that the Morris family used for decades. One tract of Morris family land north

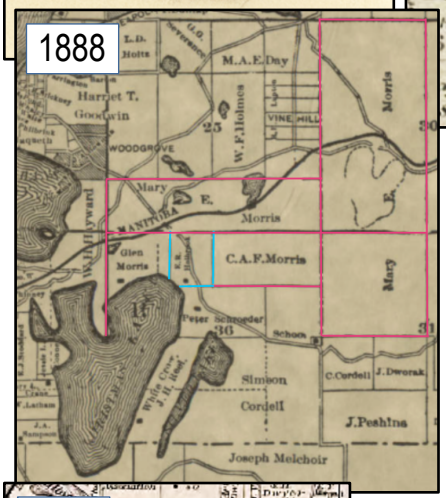
of and along the railway line near the Fair Oak Station was named 'Glen Morris'; by 1892 it was platted into smaller lots for sale. Glen Morris Cottage was noted in June 1885 when the "Misses Morris" - sisters Mary and Rosalie Morris - welcomed visitors to their home from Oregon and Washington state. Occasionally, newspaper social columns chronicle visitors to Christmas Lake and Glen Morris Cottage, with reports of 46 bass caught during an outing. Other mentions of Christmas Lake activities include the offering of 18 acres on the south side of the lake that included "good buildings and a fine vineyard" - in the area called Vinland in Carver County (Cooley 1878, 1892; Hixson & Company 1916; MNHS por30309r1, 1865; *Minneapolis Tribune* 1885a-b, 1889; *Sunday Tribune* 1887, 1888; USGS 1855; Wright 1873, 11). Further, It must be noted that the railway and later, the electric line were constructed - either through purchase or lease - on land owned by Charles and Mary Morris.



Charles A. F. Morris in 1865 (MNHS por30309r1)

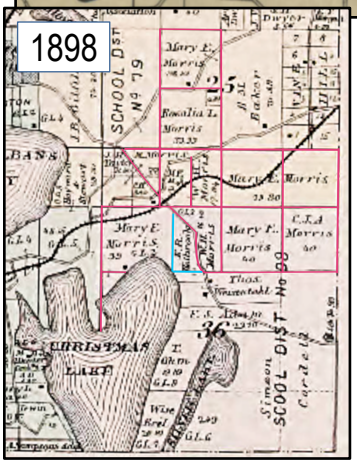


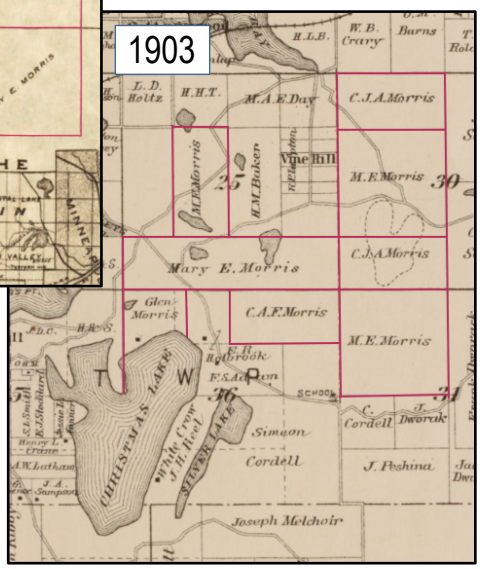






Various land tracts owned by the Morris family over the decades marked in red. The blue lines indicate Morris land where the family home/ Glen Morris Inn property were in the hands of others for a time.



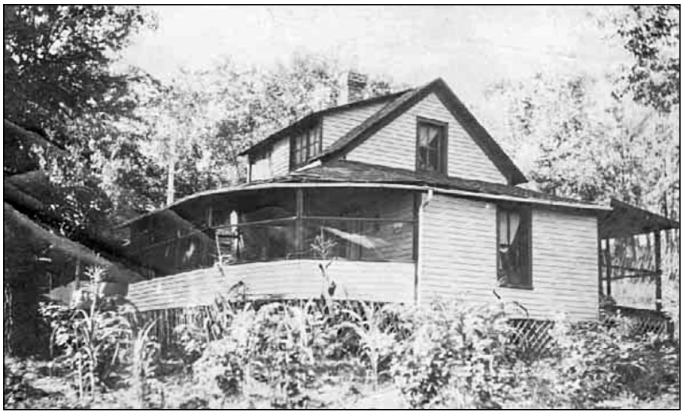


Sources: Cooley 1878, courtesy of the Westonka Historical Society; Dahl 1898; Northwestern Tourist 1888, courtesy of the Westonka Historical Society; Minneapolis Real Estate Board 1903; Wright 1873

Glen Morris Inn

Two years after the deaths of Charles on June 2,1903 and Mary on November 20, 1903, 2 of their unmarried adult children opened their lake cottage to paying customers. Rosalie Morris was listed as an 'Hotel Keeper', and John Morris worked as a 'commercial trader' and 'clerk' in 1905 and 1910; his official residence during these years was Glen Morris. Elizabeth McElroy either partnered with or worked for Rosalie, since she was also characterized as a 'Hotel Keeper' in 1905. Rosalie, along with Elizabeth, transformed the cottage into the Glen Morris Inn, and opened the hotel to paying holiday makers in 1905. The inaugural summer season for the Inn began before July, with visitors noted spending the 4th of July "at the Glen". or "at Glen Morris". The proximity of Glen Morris Inn to the Minneapolis and St. Paul Suburban Railway, the line that hosted the Twin City Rapid Transit Company Streetcars by September 30, 1905, was a convenient mode of transportation for all travelers from the Twin Cities. However, the somewhat recent proliferation of cars and decent roads promoted the development of 'automobiling parties' - and "Glen Morris, the inviting Christmas Lake resort" was a destination with many of these groups for day (including group luncheons), weekend, and longer term visits. It was noted that "Glenn Morris at Christmas lake is proving a very popular resort for wealthy Minneapolis and St. Paul people this summer". In 1905, the Inn remained busy into mid-October, with tourists from the Twin Cities, Duluth, Idaho, Philadelphia, Boston, California, and Milwaukee staying at the hotel. Rosalie Morris closed down the Inn in the late autumn and wintered with her sister, while Glen Morris employee Elizabeth McElroy wintered in Pittsburg (Kieffer 1958, 31-32; *Minneapolis Journal* 1905b-h; *Minneapolis Tribune* 1903a-b; Minnesota State Census 1905; United States Federal Census 1910).

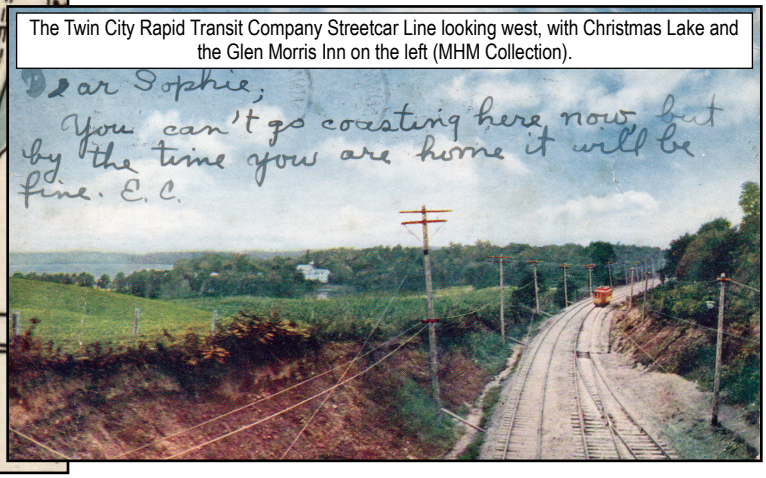
The John A. Anderson cabin on Christmas Lake (MNHS MH5.3r41).



This Christmas Lake map indexed the buildings around the area. The rectangular building labeled "6" is the Glen Morris Inn. The "2" is the Anderson cabin depicted to the right. MHM suspects buildings 1-6 were - at some point - rental cottages for the Glen Morris/Radisson Inns (Woodman 1908).



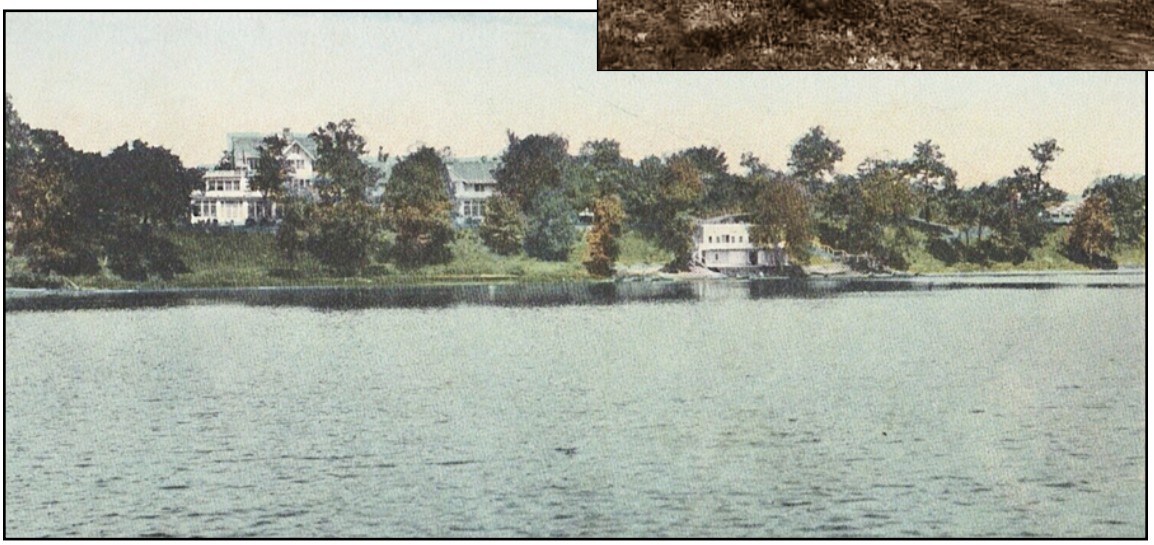
The Twin City Rapid Transit Company Streetcar Line looking west, with Christmas Lake and the Glen Morris Inn on the left (MHM Collection).





The Reel house on Christmas Lake (MNHS MH5.9SHp3).

Glen Morris Inn/Radisson Inn from Christmas Lake. Note the large boat house on the shoreline (postcard).



Over the winter of 1905-1906, the Glen Morris Inn underwent a number of changes designed to increase its guest capacity and offerings:

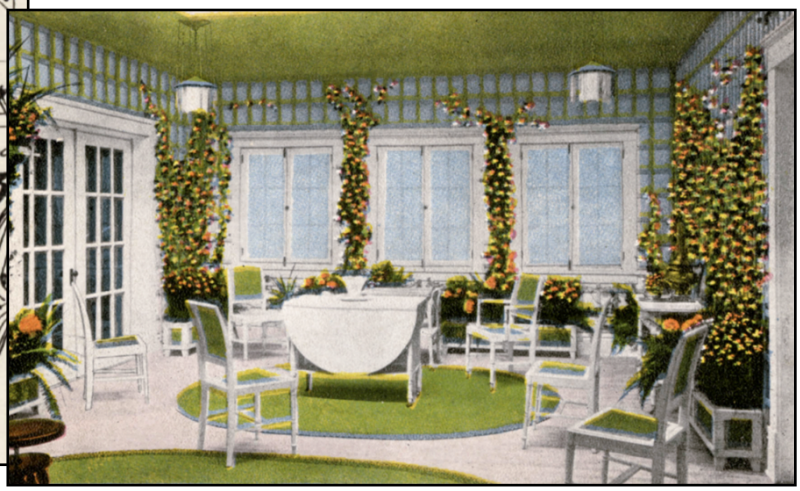
> Glen Morris Inn, the old Morris country home at Christmas lake, looks prettier and more attractive than ever this year. Since last fall a number of changes have been made at the Glen. Miss Morris and Miss McElroy have enlarged the place and made necessary improvements to make it more attractive and homelike. A large new dining room has been built, with an old-fashioned boulder fireplace and low English windows, which lead straight to the verandas. The low ceiling, with its heavy beams of mission oak, and the pretty mission furniture, as well as the details in the finishing of the walls and decorations, were carried out with the original ideas of the hostesses. An addition of 14 new rooms has been made to the old house. The porches have been widened and a veranda, with low overhanging roofs has been built about the new additions. The Inn opened May 15....

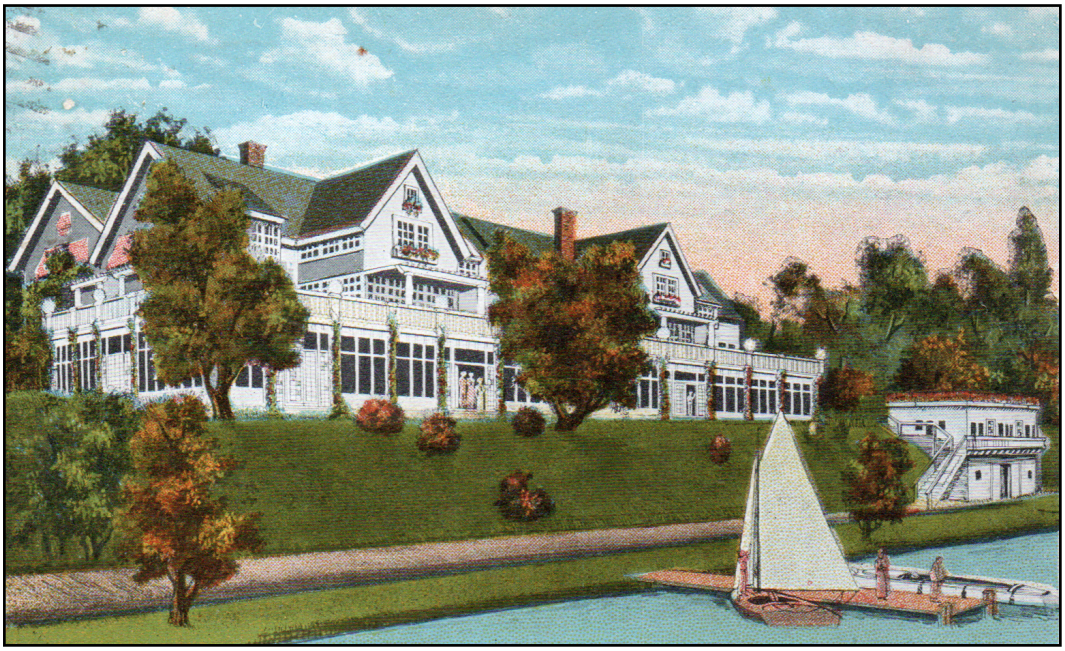
During this earliest part of the season, 7 families, 1 couple, and a single lady were the first visitors to Glen Morris Inn. The 1906 resort season at the Inn was very successful, with bookings through August and September, when most hotels and guest houses closed for the year. Further, Rosalie and Elizabeth kept the Inn open throughout the winter, providing a resort near the Twin Cities for family activities such as iceboating, sleigh rides, and fireside activities. The following spring, social event reports indicated the Glen Morris Inn was host to a house party of 26 people and a 'Pinafore' party put on by 'the university girls' after their performance in an opera, and sororities Kappa Alpha Theta and Gamma Phi Beta had a dinner dances at the resort as well. As the years went on, these types of gatherings persisted, including an Argosy Club luncheon and Phi Delta Theta fraternity formal dinner dance (*Minneapolis Journal* 1906; *Minneapolis Tribune* 1906a-b, 1907; *Minneapolis Sunday Tribune* 1907a-b, 1911). Over the years, the Inn also constructed a dozen cottages for long and short-term rental, in addition to the hotel rooms. Glen Morris Inn was acquired by the Radisson hospitality group over the winter of 1916-1917.



Rosalie Morris owned the Glen Morris Inn and land in 1913 (Westby 1913).

The Lattice Room of the Glen Morris Inn (Westonka Historical Society).





Glen Morris Inn, its boat house, and dock (MHM Collection).



The path along the lake heading to the Glen Morris Inn boat house and hotel (MNHS MH5.9SHr1).



Glen Morris Inn/Radisson Inn cottages (Hennepin County Library P47223).

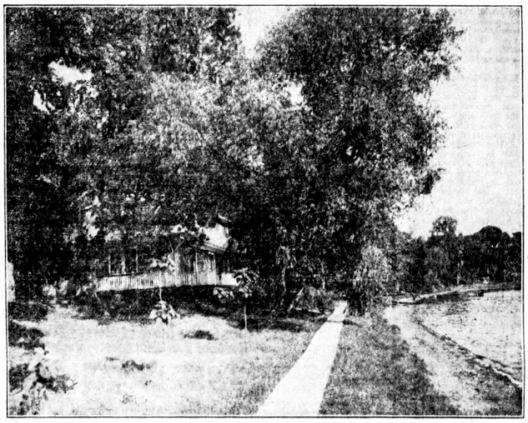


A wineglass stern rowboat at the shoreline of Christmas Lake at the Glen Morris Inn/Radisson Inn (MNHS MH5.9EX4r39).

Radisson Inn and Beyond

The original name of the Inn was retained for a few years, with inquiries sent to the Hotel Radisson in Minneapolis. The Inn's advertisements refer to the business as 'Formerly Glen Morris Inn' when it became the Radisson Inn in 1917. The Radisson operated similarly to the Glen Morris Inn, offering hotel rooms and shoreline cottages. The facility was popular in the winter, hosting the newly-formed 'Cooperative Radio Network' and the National Football League host for CBS and NBC radio Frank Gordon. After a large party of 200 ended on a Saturday night, the housekeeper living on the 3rd floor woke up to smoke; she fashioned a rope with sheets and went out her window to the porch roof, and onto the ground. She ran to the Inn's caretaker's home nearby; he called the fire department and then helped rescue 5 other employees - including the chef - from the burning Inn. In about 2 hours the main Inn building burned down to the ground at a $100,000 loss, and all of the Radisson's 16 cottages were saved.

Glen Morris Offers



An Opportunity Extraordinary

Departing from their usual custom, the Management of GLEN MORRIS INN will, for the season of 1917, rent to private parties, the Bungalows on beautiful Christmas Lake, an arm of Minnetonka.

These Bungalows, completely furnished, save linen and silver, and equipped for hot and cold running water, bath, electric lights, and having in connection spacious sleeping porches, also practical kitchenettes, may be secured at a

MODERATE RENTAL

Guests may occupy the Bungalows as late in the fall as they desire, thereby enabling them to enjoy the fall season, which is the most beautiful of the entire year.

Forty-five minutes from Minneapolis, by either trolly or auto. GLEN MORRIS has a charm which is original in itself, a natural landscape nearly perfect and offers a delightful combination for health and happiness.

No Charge Is Made for Garage Accommodations

Because of the limited number of Bungalows we suggest early reservations.

A request will bring an illustrated booklet containing photo cuts of each Bungalow.

Telephone, write or enquire of

Glen Morris Inn Department,
Manager's Office,
Hotel Radisson, Minneapolis, Minn.

N. W. Nicollet 2560. Dial 34 611.

GLEN MORRIS INN

Christmas Lake,
Minnetonka.

OPENS JUNE 16th

Address all inquiries to

HOTEL RADISSON
MINNEAPOLIS.

Glen Morris Inn

CHRISTMAS LAKE
MINNETONKA

Opens June 19

Cottages available for season rental now

Inquire Manager's Office
HOTEL RADISSON

Newspaper advertisements linking the Glen Morris Inn with the Radisson Inn until mid-1919 (*Minneapolis Morning Tribune* 1917; *Minneapolis Sunday Tribune* 1917, 1918a, 1918b, 1919).

The 1931 Season brochure for the Radisson Inn (MNHS 2005.13.8).

GLEN MORRIS INN

CHRISTMAS LAKE

Minnetonka cottages are available now for season rental. $250.00 to $800.00 for the season. Apply "Manager" Hotel Radisson or see Mr. Sullivan at Glen Morris Inn.

RADISSON INN

formerly
GLEN MORRIS INN

EXCELSIOR, MINN.

Opens June 28th

With an Informal Dinner Dance
Dinner 6 to 8. $1.50 per Cover
Dancing 9 to 12.

A high class summer resort at popular prices. Inquire manager's office.

RADISSON HOTEL







Off-season football entertainment at the Radisson Inn and the back yard of the Inn (*Minneapolis Star* 1934; *Minneapolis Tribune* 1936



FLAMES RAZE
RADISSON INN

$100,000 Loss at Summer Resort; Woman Slides Down Rope, Gives Alarm.



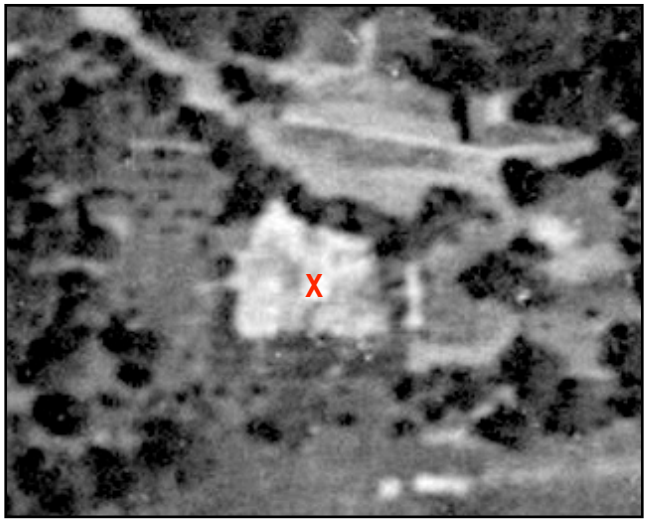




The front - lake side - of the Radisson Inn and views of the catastrophic fire in May 1936, taken from the road at the back of the Inn (Hennepin County Library P47222; *Minneapolis Tribune* 1936; MNHS Photograph Collection 20966, 20967, 20968).

After the fire, the Radisson Inn's cottages remained operational and were available for rent from May 1 to September 15. Fully furnished, the cabins had hot water, fireplaces, maintained grounds, and a beach. In the 1940s, "Christmas Lake Cabins" were advertised, with 20 housekeeping cabins for seasonal rental available. In the 1960s, "Christmas Lake Resort" cottages were 'ultramodern' cabins that housed between 4 and 10 people in 1 or 2 bedrooms. Rented weekly, the cottages had their own beaches and boats. During the 1970s, the Christmas Lake Motel & Resort was located on the west side of the peninsula from the site of the original Glen Morris Inn. The Motel & Resort had 18 'modern' housekeeping cabins, along with a beach, fishing, paddle boats, and other nearby activities (Holland 2013, 50, 53; *Minneapolis Star* 1934; *Minneapolis Tribune* 1936, 1939, 1965, 1976).

In this aerial photograph, the red 'X' marks the center of the Radisson Inn ruins on July 5, 1937.



The yellow 'X' marks the same location on May 7, 1956, after the building's foundation and debris was cleared, and a round-about type driveway was installed (John R. Borchert Map Library, WN-5-429, HHJ-553).







The light blue 'X' marks the site of the Radisson; note the new homes and driveways around the site on April 23, 1962.

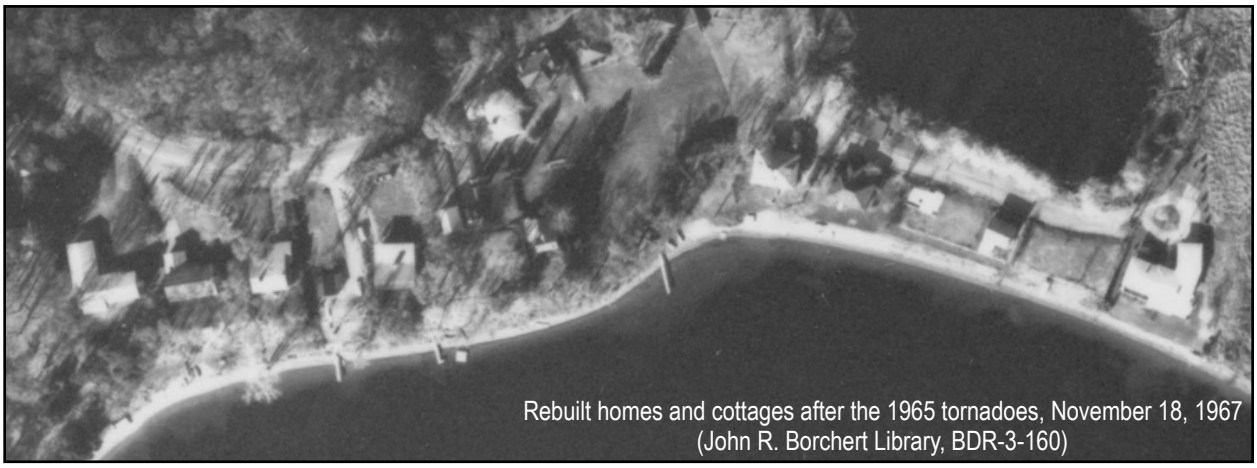
The orange 'X' marks the same location on November 18, 1967, after the area was nearly destroyed by the tornadoes of May 1965 - and rebuilt (John R. Borchert Map Library, AA-4-29, BDR-3-160).



The location of the Christmas Lake Resort/Christmas Lake Motel and Resort in the late 1950s into the 1970s (John R. Borchert Library, MCY-5-114).







Rebuilt homes and cottages after the 1965 tornadoes, November 18, 1967
(John R. Borchert Library, BDR-3-160)

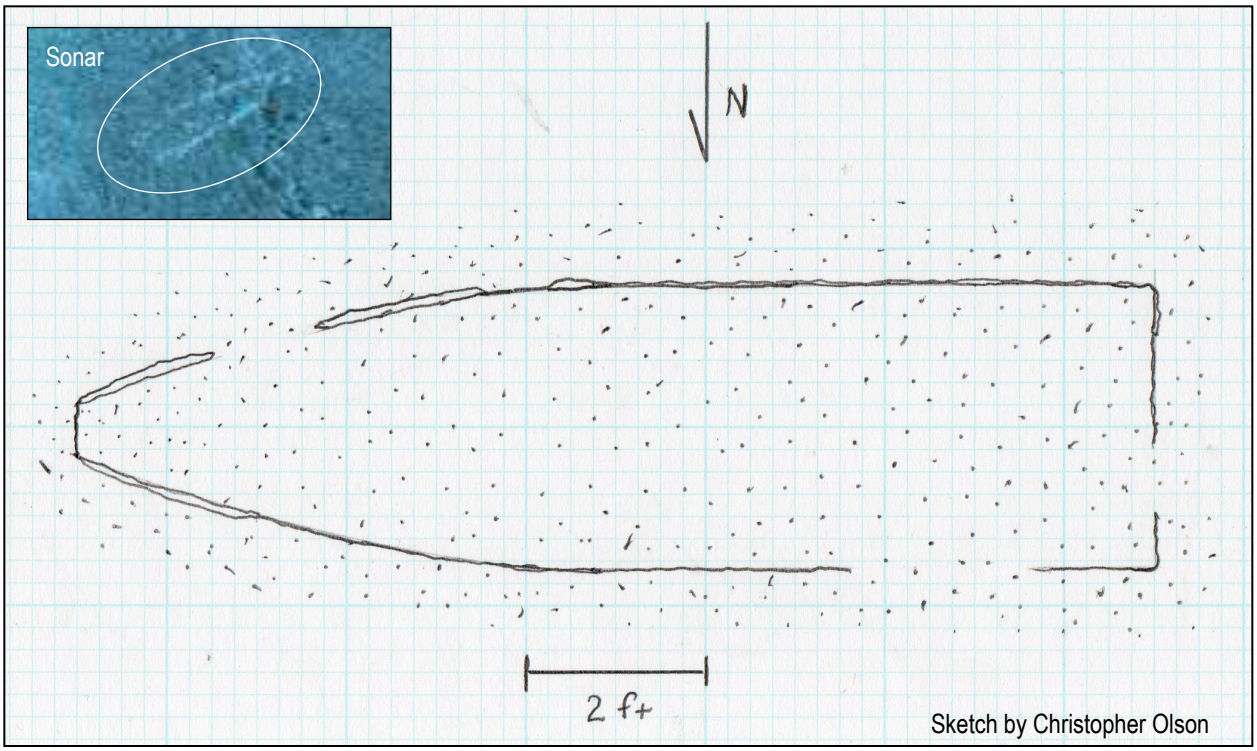
Christmas Lake Sonar Survey and Dive Reconnaissance Results

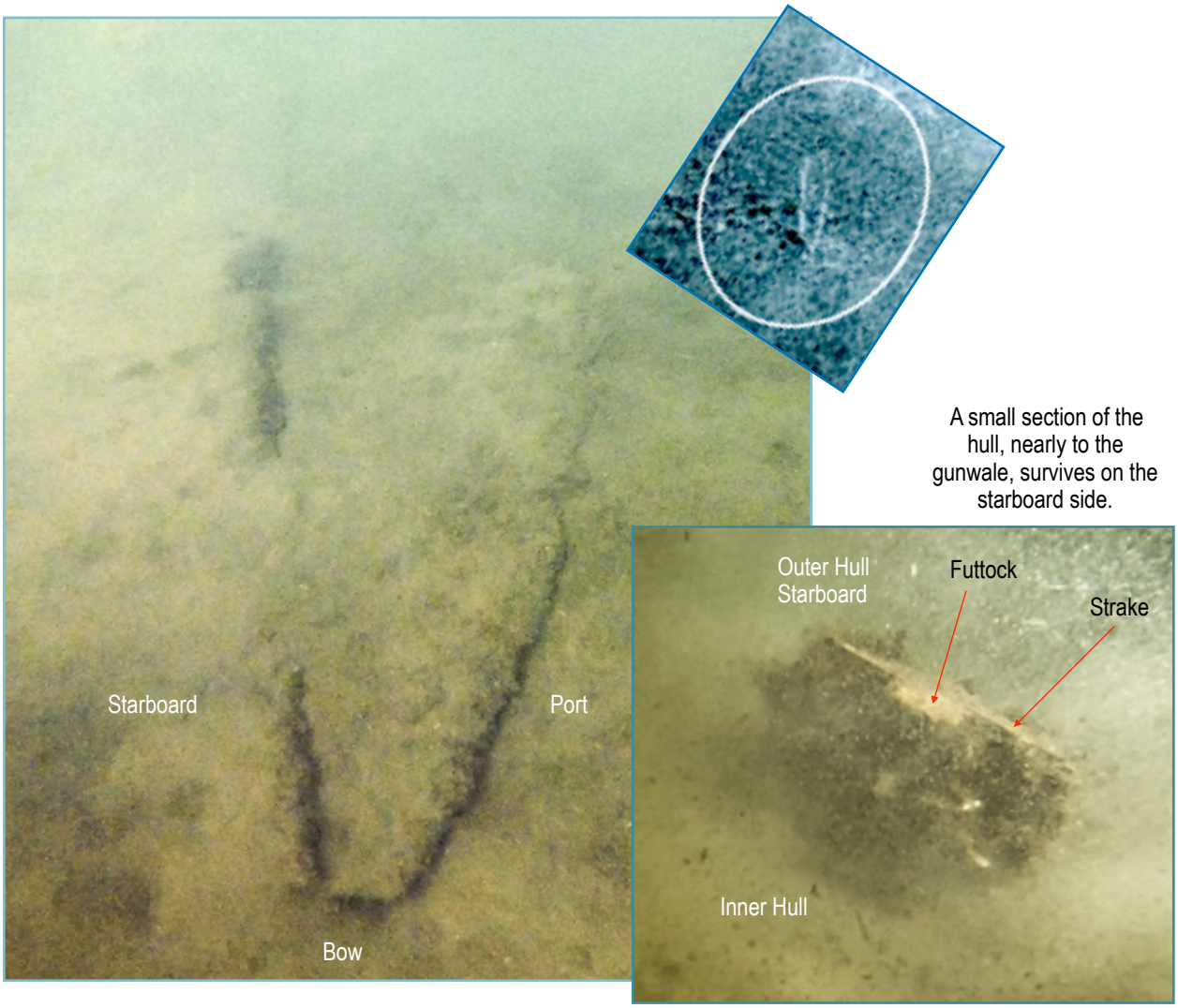
As detailed above, hotels and guest houses during the late 19th into the late 20th Centuries west of the Twin Cities hosted daily, weekly, and seasonal patrons. To serve their guests, Glen Morris Inn, Radisson Inn, Christmas Lake Resort, and Christmas Lake Motel and Resort maintained fleets of small watercraft for their patrons. Several Twin Cities boat-building companies constructed small basic watercraft including Moore Boat Works of Wayzata, Dingle Boat Works of St. Paul, and Ramaley of White Bear Lake and Wayzata. Additionally, 1 newly recognized wreck was constructed by the Alexandria Boat Works of Alexandria, MN. Eleven of the 13 wrecks identified to date are of the size, design, and age that they may have been owned by resorts on Christmas Lake.

*Note that the underwater images below were taken from video recorded by MHM volunteers Josh Knutson and Kelly Nehowig.

Wooden Rowboat Wreck Site, 21-CR-169 (Anomaly 17)

The Wooden Rowboat Wreck is 12.40 feet long and 3.20 feet in the beam. The wreck is significantly buried in the silt, so it cannot be determined if the watercraft is of lapstrake (the hull is constructed with over-lapping planks, often called clinker-built) or carvel (the hull is constructed with planks set edge to edge). The very end of the bow - including the stempost - is damaged on both port and starboard. The wreck has a square stern and from the visible hull section that includes a futtock, the watercraft was constructed with thin slat frames. Many carpenters and fishermen were capable of constructing functional watercraft, particularly with simple sheer lines and square sterns like the Wooden Rowboat Wreck, but the boat could have been constructed by a company such as Moore or Dingle. MHM contends a construction date of around 1890 is reasonable because of the basic design of the wreck and her nearly completely buried nature. In consideration of a sinking date, small boats of this type usually had a life span of 15 years or less due to repeated exposure to hot summers and then cold winter storage that expanded and shrunk the wood. Further, because of their relatively inexpensive construction - and often mixed woods such as oak with lesser woods like pine - boats would be replaced rather than undergo extensive repairs over their lifetime. MHM suspects the boat sank around 1905 due to her buried nature. MHM submitted an archaeological site form for the Wooden Rowboat Wreck to the OSA, and received site number 21-CR-169.

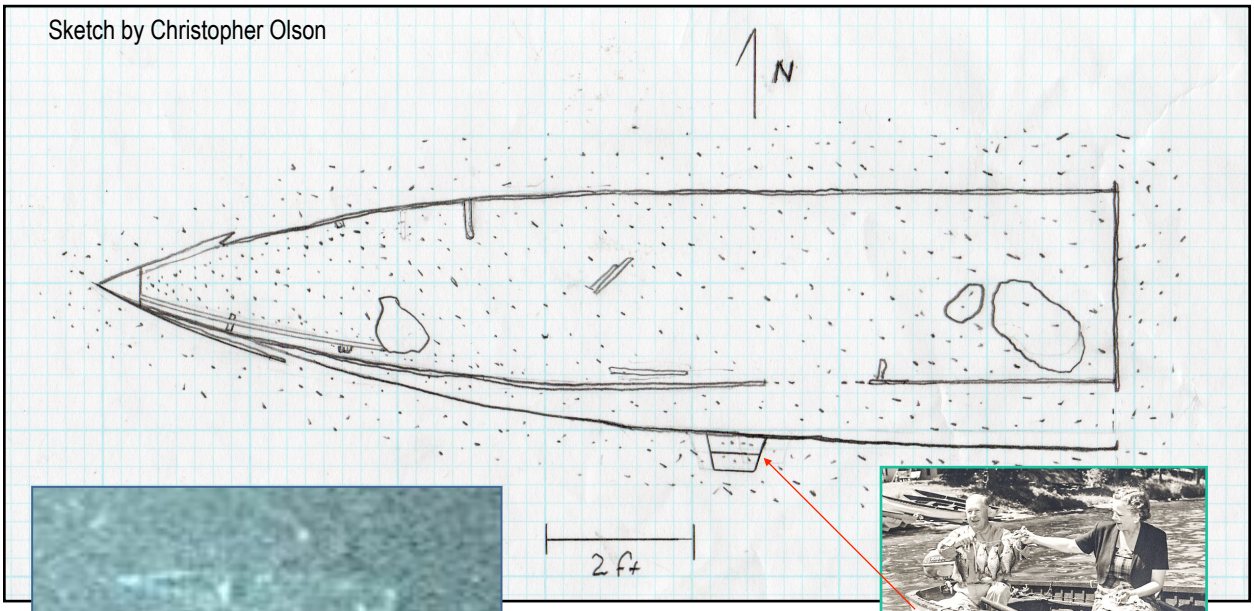




A small section of the hull, nearly to the gunwale, survives on the starboard side.

Flat Bottomed Rowboat Wreck Site, 21-HE-543 (Anomaly 10)

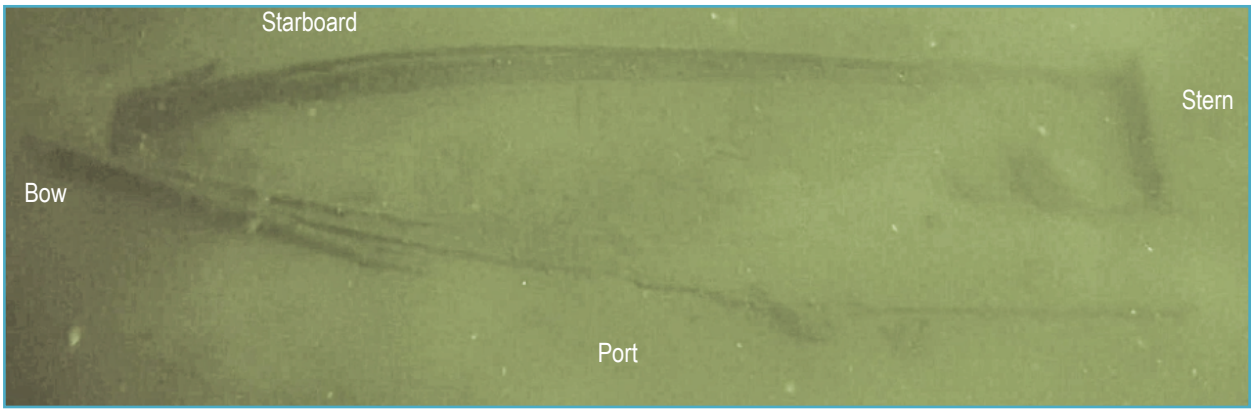
The Flat Bottomed Rowboat Wreck is 13.70 feet long, 2.60 feet in the beam, and 2.60 feet at the transom; the site, however, is 3.60 feet wide. This carvel-built rowboat wreck (the hull is constructed with planks set edge to edge) has significant damage on her starboard side with several of the upper strakes missing. Her port side is also considerably disturbed, having fallen away from the main wreck. The port side gunwale is visible, and a trapezoidal shaped strap of metal with a crossbeam protrudes from it amidships. The port side of Anomaly 10 may be intact - but detached above the turn of the bilge - lying on the lake bottom under a light layer of silt. The sharply pointed bow has an abrupt rake with a wide stempost that can be seen inside the hull; it is flanked by 2 upright braces that provided added strength to the stempost on both port and starboard. A small triangular deck also provided rigidity and strength to the bow. The wreck has 5 visible frames inside the hull, and MHM contends the wreck likely had 8 frames on both port and starboard originally. Longitudinal stringers run along both sides of the wreck above the turn of bilge. The transom is square and seemingly intact, partially covered with silt, and the wreck probably had 3 benches when constructed. The chine is rounded and the bottom is flat.



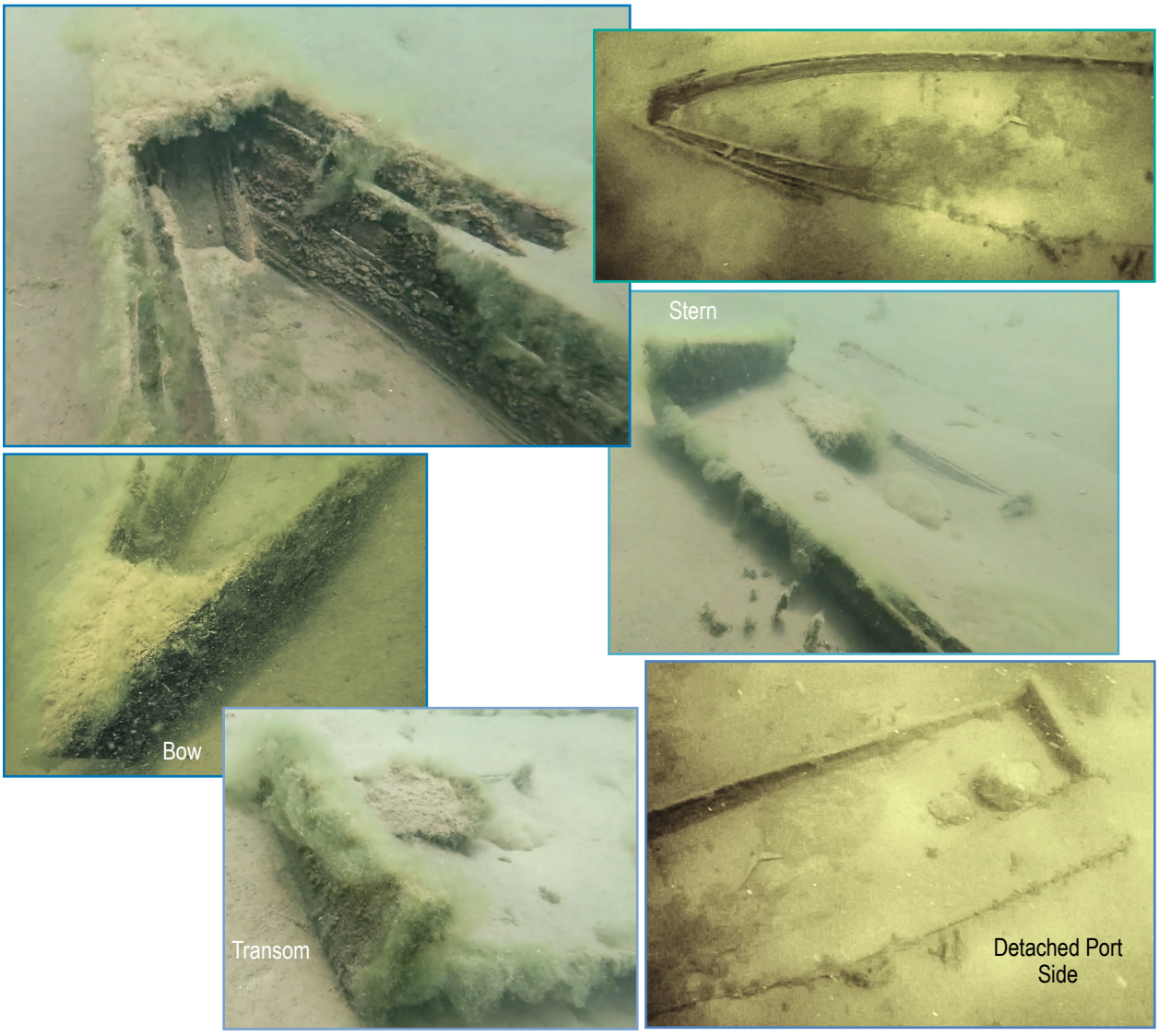


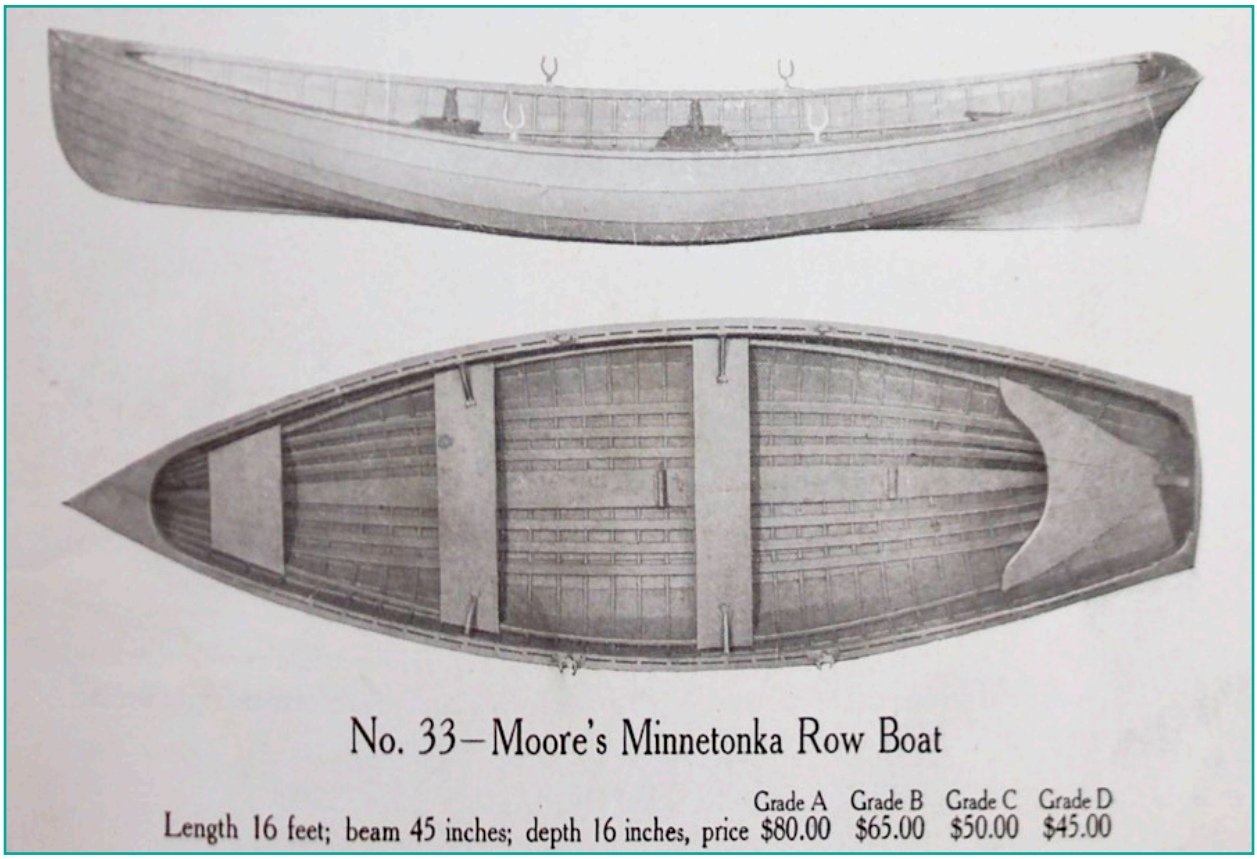


Fish cleaning station attached to the gunwale of a fishing boat (Geneva Beach Resort 2017)



The design of Anomaly 10 suggests the Fisherman's Friend model with the exception of the wreck's longitudinal bottom hull planking, soft chine, and multiple-strake construction. Further, the design of the flat bottomed Wineglass Stern Wreck 4 (21-HE-539) of Christmas Lake (see below) is suggestive of Anomaly 10. The Flat Bottomed Rowboat Wreck is a sort of transitional watercraft from the true Fisherman's Friend model to Wineglass Stern Wreck 4's flat bottom design with few frames. MHM contends a manufacturing date of around 1895 is reasonable based on the transitional design between the Fisherman's Friend and Wineglass Stern models. Lastly, 4 significant field stones are visible in the hull, attributes of the site that clearly indicate the intentional sinking of the boat once it had out-lived its usefulness. In consideration of a sinking date, small lightly-build boats had a life span of 10-15 years or so. Therefore, as a sort of 'hybrid' Fisherman's Friend/longitudinally-planked watercraft, her degraded condition, and being partially buried, MHM contends a sinking date of 1910 is sensible. It is possible that Anomaly 10 was a home-build since flat bottomed square transom craft were less difficult to construct than V-shaped hulls and those with wineglass sterns, or she could have been constructed by a firm such as Moore, Dingle, or Ramaley. MHM submitted an archaeological site form for the Flat Bottomed Rowboat Wreck to the OSA, and received site number 21-HE-543.



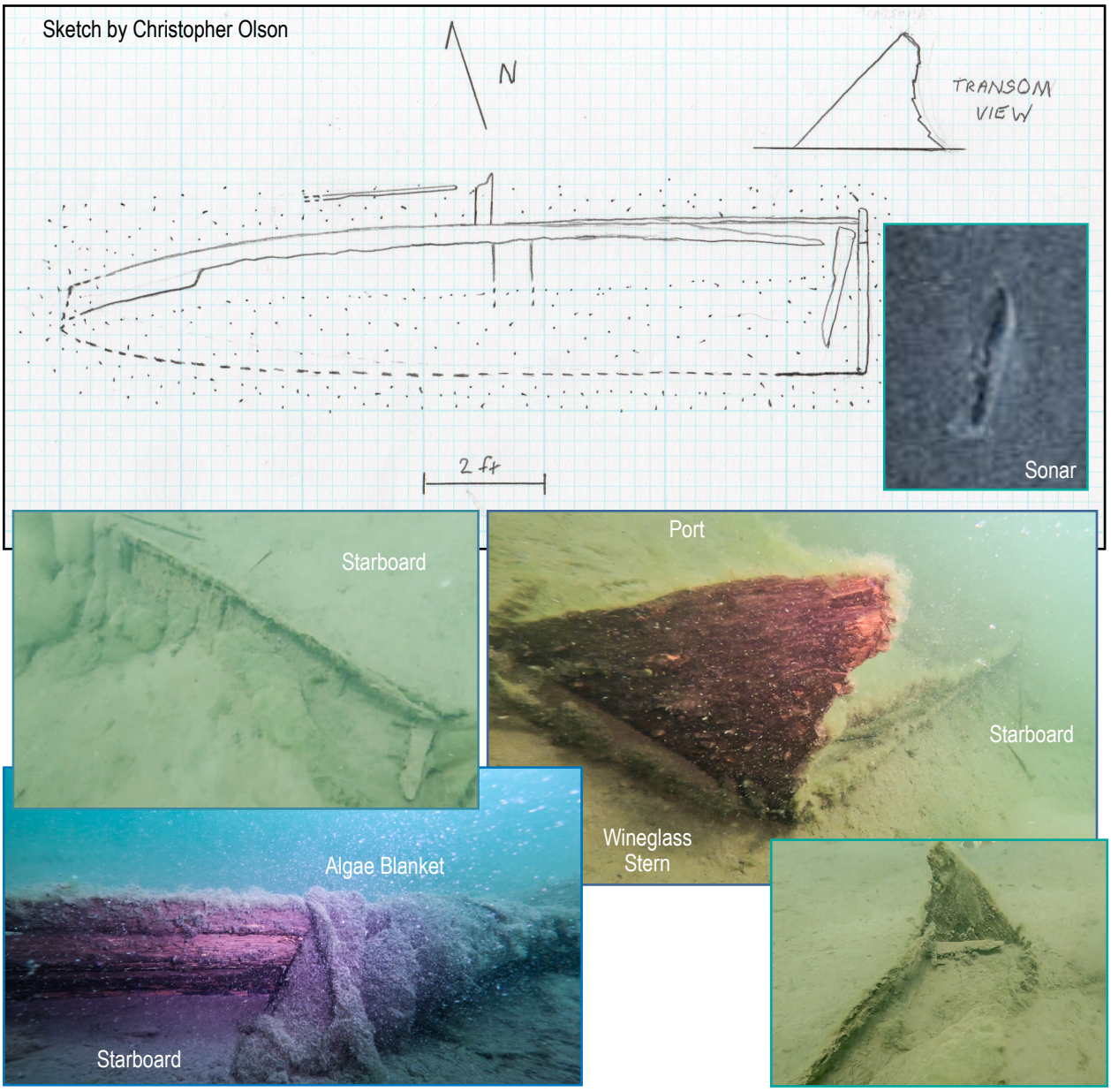


Moore's Minnetonka Row Boat is a Wineglass Stern model with a clinker-built hull. The following 6 wrecks were constructed with this design, with slight variations seen throughout (Moore Boat Works 1908, 21).

Wineglass Stern Wreck 4 Site, 21-HE-539 (Anomaly 7)

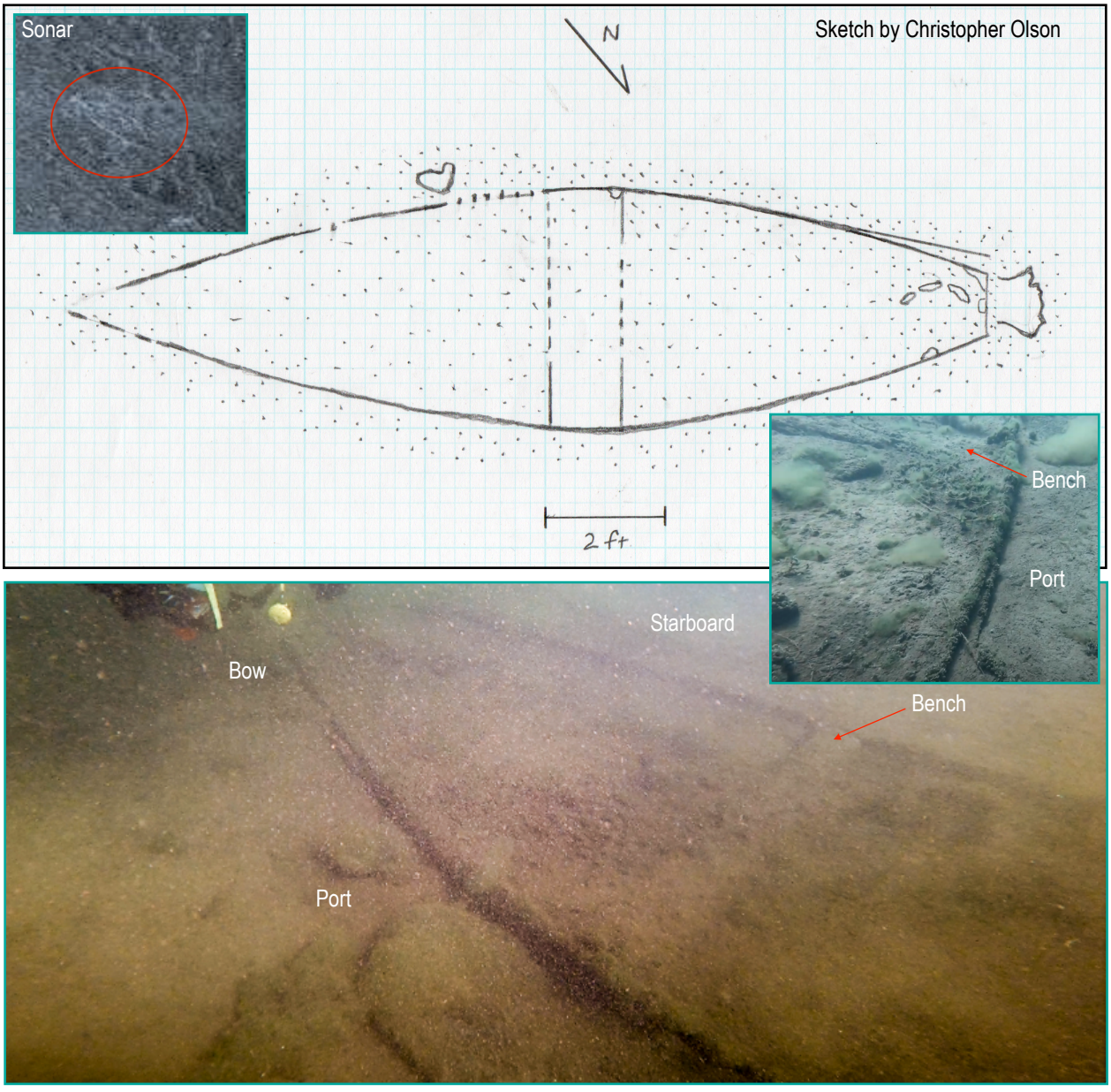
The Wineglass Stern Wreck 4 is 13.20 feet long, 3.20 feet in the beam, and 2.60 feet at the transom. This lapstrake rowboat wreck is partially destroyed on her starboard side and is lying on her port side. The wineglass transom is intact, except for the gunwale that is somewhat rough. The sternpost is extant but no longer attached to the hull; it is lying inside the wreck next to the transom. The port quarter and gunwale is visible lying on the lake bottom, but then the rest of that side of the wreck is buried in silt and a blanket of algae. The keel survives at the stern and presumably throughout the hull. However, the starboard side of the wreck is nearly destroyed at the stern, but it is more intact amidships and forward. Algae also obscures part of the starboard side forward, but enough of the inner and outer hull is visible to make conclusions about the wreck's construction. Three starboard strakes survive above the silt; their lapstrake construction is evident. The inner starboard side has 3 wide frames visible above the silt, although more may exist near the bow and others were destroyed toward the stern. It is unknown if the stempost has survived or to what extent the bow is intact. However, the point of the bow survived just below the silt and has been felt by divers. Outside the wreck on the starboard side, what appears to be part of a boat bench and possibly a caprail/ gunwale section lie in the silt. The vessel had benches during her working life, either 3 or 4 of them based on the wreck's size. The Wineglass Stern Wreck 4 differs in construction from others of this type that MHM has documented both in Christmas Lake

and Lake Minnetonka in terms of her framing. Other wineglass stern wrecks so far identified by MHM have thin frames placed close to each other throughout the hull. The 3 starboard frames that are seen are similar in design and size to those found in Fisherman's Friend flat-bottomed boats that are simply constructed. MHM contends a manufacturing date of around 1895 is reasonable based on the simple design and construction of the watercraft when compared to other wineglass stern boats. It is also supposed that the boat is not a home-build due to the lapstrake construction and wineglass transom, attributes that require an experienced boat-builder to produce successfully; she could have been constructed by a firm such as Moore, Dingle, or Ramaley. In consideration of a sinking date, small boats such as Fisherman's Friends had a life span of 10-15 years or so, but that model was more heavily built than Anomaly 7. Therefore, as a sort of 'hybrid' wineglass stern/Fisherman's Friend watercraft, her degraded condition, and being partially buried, MHM contends a sinking date of 1905 is sensible. MHM submitted an archaeological site form for the Wineglass Stern Wreck 4 to the OSA, and received site number 21-HE-539.



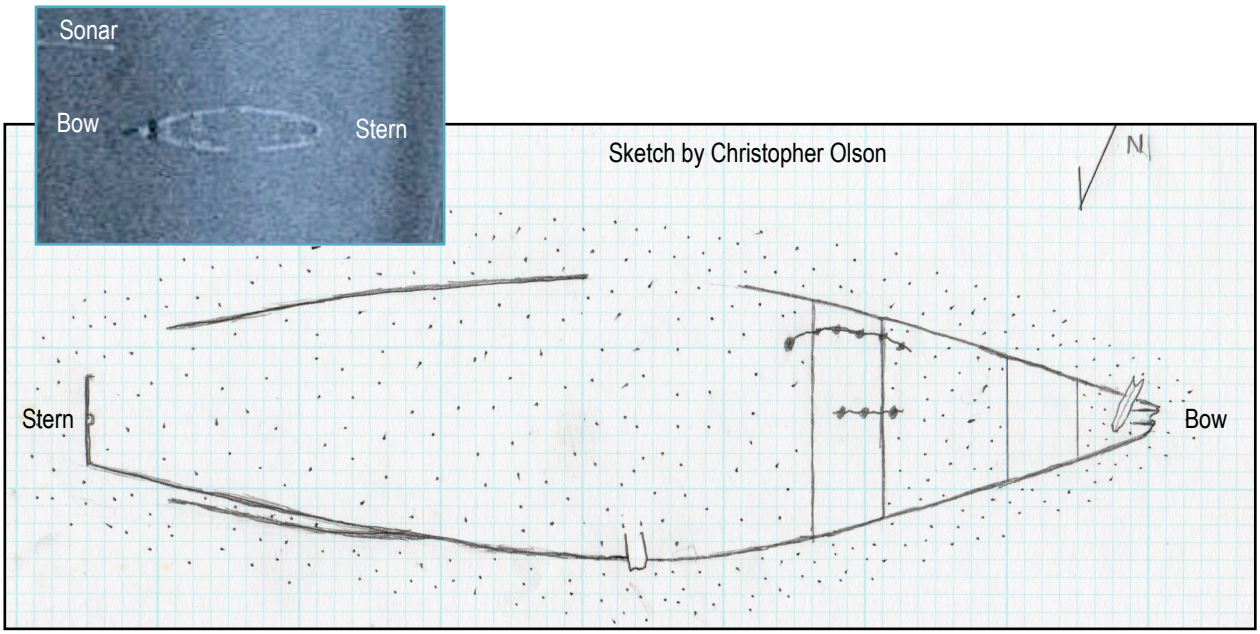
Wineglass Stern Wreck 3 Site, 21-HE-540 (Anomaly 24)

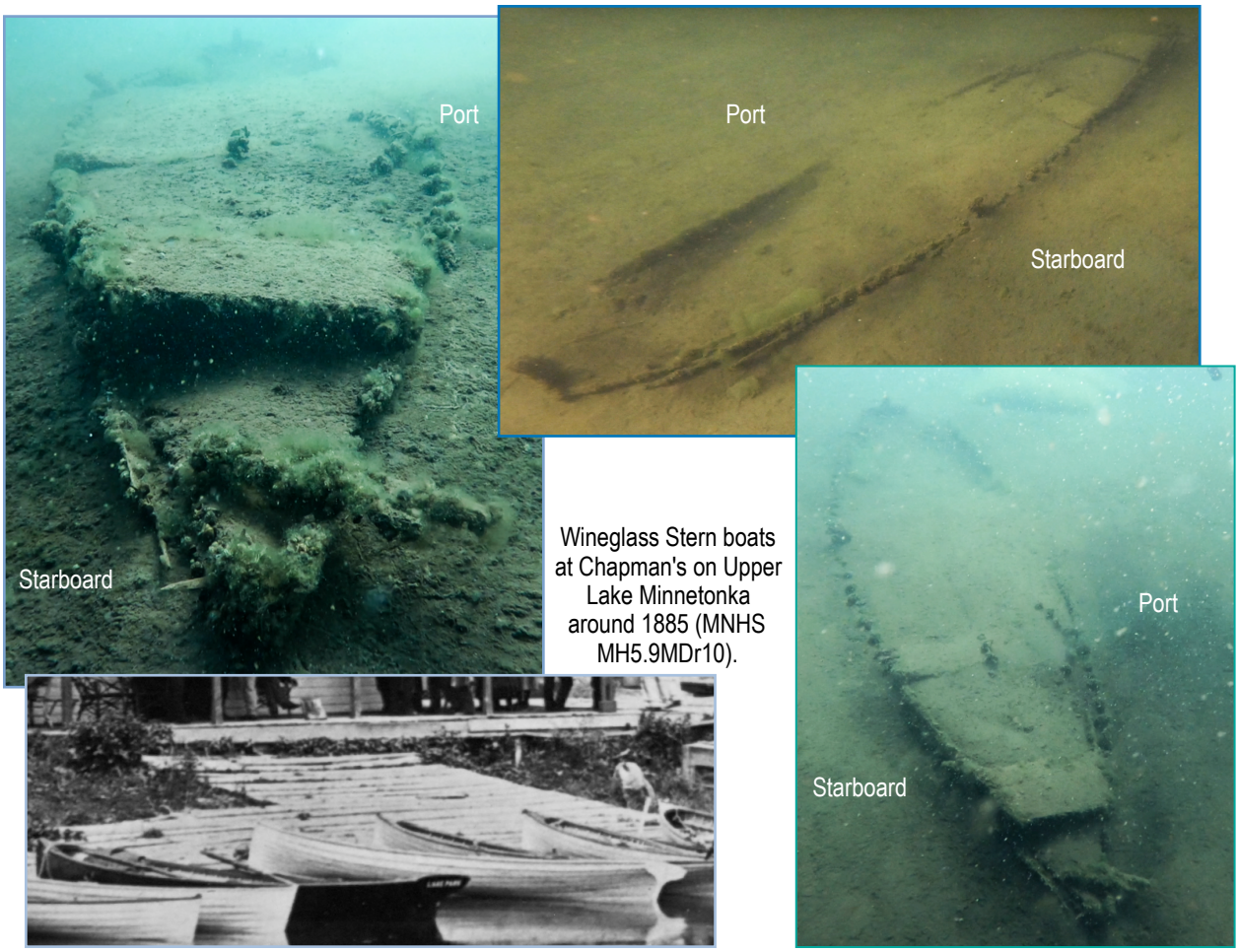
The Wineglass Stern Wreck 3 is 15.40 feet long, 4.10 feet in the beam, and 1.0 feet at the transom. The wreck is significantly buried in the silt, so it cannot be determined if the watercraft is of lapstrake or carvel construction. The bow is pointed and while detached, the wineglass transom stern survives as does the sternpost; MHM also contends that the stern seat is extant just under the silt. On the port quarter, a lateral reinforcement knee is also extant. Part of the gunwale or a top strake has loosened form the wreck on the starboard side. One amidships bench is evident, although more seats are likely buried in the silt. MHM contends a construction date of around 1900 is reasonable, and the boat sank around 1910 due to her buried nature. If this timeline is relatively accurate, she was probably owned by the Glen Morris Inn and could have been constructed by Moore, Dingle, or another local boat builder. MHM submitted an archaeological site form for the Wineglass Stern Wreck 3 to the OSA, and received site number 21-HE-540.



Wineglass Stern Wreck 2 Site, 21-HE-537 (Anomaly 4)

The Wineglass Stern Wreck 2 is 15.10 feet long, 3.90 feet in the beam, and 1.20 feet at the transom. This lapstrake rowboat wreck has thin outer hull strakes with light inner frames consisting of floors and futtocks. The gunwale is missing throughout the hull, and the futtocks are seen protruding from the silt on both port and starboard, indicating the wreck has survived past the turn of the bilge. Her bow is missing above the waterline but the front bench is intact and attached to the inner hull on both port and starboard. Further aft, another bench survives; 3 pieces of what appears to be chain link fence lie on top of the bench and into the silt. The sternpost survives and is protruding from the damaged transom; MHM contends the keel, deadwood, and outer hull stern planking survive below the silt. The wreck likely had 4 benches in total and the 'missing' examples might be in the silt inside the hull, possibly detached. The general condition of the hull above the silt is poor but relatively stable because the silt inside the hull protects the remaining wreck attributes. These wineglass stern rowboats were often manufactured from oak, and were lightly constructed for ease of launching and movement. MHM contends a construction date of around 1905 is reasonable because the Glen Morris Inn was opened to the public - transformed from a single-family home - in 1905, and this wineglass stern wooden boat composition was the most popular design. Additionally, MHM suggests the Wineglass Stern Wreck 2 is a member of a Christmas Lake fleet, possibly from the Glen Morris Inn. It is possible that Anomaly 4 was constructed by Moore or Dingle, although many Twin Cities boat-builders constructed watercraft of this design. In consideration of a sinking date, small boats of this type usually had a life span of 10-15 years or less due to repeated exposure to hot summers and then cold winter storage that expanded and shrunk the wood. Further, because of their relatively inexpensive construction - and often mixed woods such as oak with lesser woods like pine - boats would be replaced rather than undergo extensive repairs over their lifetime. MHM suspects the boat sank around 1915 due to her relatively poor condition and her buried nature. MHM submitted an archaeological site form for the Wineglass Stern Wreck 2 to the OSA, and received site number 21-HE-537.

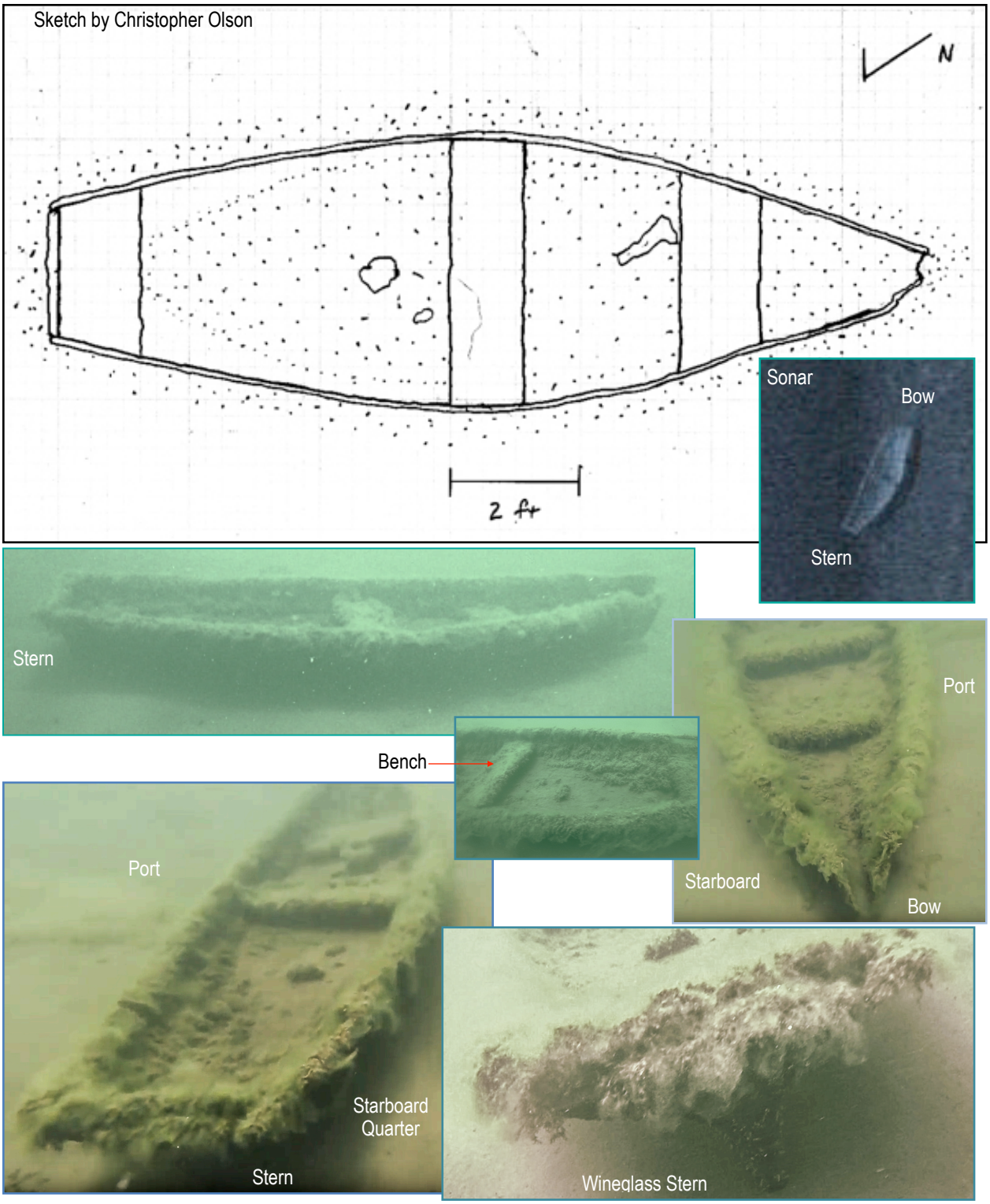




Wineglass Stern boats at Chapman's on Upper Lake Minnetonka around 1885 (MNHS MH5.9MDr10).

Wineglass Stern Wreck 1 Site, 21-HE-535 (Anomaly 2)

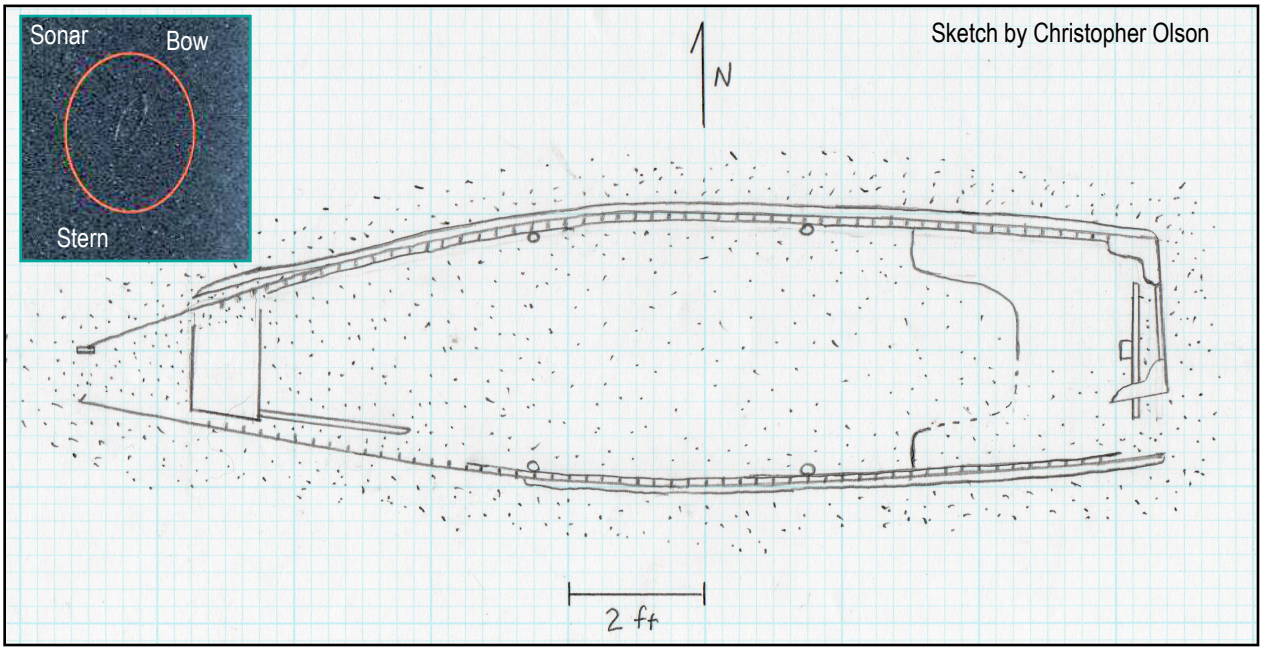
The Wineglass Stern Wreck 1 is 13.50 feet long, 4.20 feet in the beam, 2.00 feet at the transom, and has a 2.00 depth of hold. This lapstrake rowboat has thin outer hull strakes with light inner frames consisting of floors and futtocks. Her stempost is damaged and the bow is split, while the wineglass stern is healthy with an intact stempost, keel, deadwood, and outer hull planking. A section of ceiling planking runs longitudinally along the wreck's flat bottom and upward with the turn of the bilge. This planking would allow the boat's passengers to easily walk when inside the vessel. The wreck has 3 benches; 2 fore and amidships and a wider example at the stern. The gunwale is intact throughout the wreck with the exception of the port and starboard bow. The general condition of the hull appears to be healthy, although the thick layer of zebra mussels is obscuring much of the wreck. MHM contends a construction date of around 1905 is reasonable, and Anomaly 2 may have been constructed by Moore or Dingle. and in consideration of a sinking date, small boats of this type usually had a life span of 15-20 years. Therefore, the MHM has determined the boat sank around 1925 due to her relatively intact condition and her unburied nature. At the time of her sinking, if this timeline is relatively accurate, the Wineglass Stern Wreck 1 was probably owned by the Glen Morris Inn and then the Radisson Inn, and was a member of a Christmas Lake fleet. MHM submitted an archaeological site form for the Wineglass Stern Wreck 1 to the OSA, and received site number 21-HE-535.



Wineglass Stern Wreck 6 Site, 21-HE-541 (Anomaly 36)

The Wineglass Stern Wreck 6 is 15.70 feet long, 4.00 feet in the beam, and 3.30 feet at the transom; however, the wreck has splayed out, increasing the size of the site. Therefore, MHM contends the transom was originally 2.00 feet wide. This lapstrake rowboat wreck has outer hull strakes with light inner frames consisting of floors and futtocks. The splayed-out nature of the wreck resulted from the port side of the

watercraft shifting away from the starboard side and detaching from the stempost at the bow and port quarter at the stern. The starboard quarter has also loosened from the transom and has slid outward. The bow is pointed and the wineglass transom stern and sternpost are extant. The triangular stempost survives and is intact, extending above the gunwale; the heads of 2 sturdy bolts can be seen on the starboard edge of the post and it rakes forward. The gunwale is damaged on both sides of the bow, but is intact throughout the remainder of the wreck. It does not have a caprail, but it is sturdily constructed and is comprised of a stringer, futtocks, sheer strake, and a rubrail. On both quarters, small horizontal reinforcement knees are attached to the gunwale; the port side example is held in place by an athwartships stringer and the transom, components that have separated. Two sets of oarlocks remain attached to the inner gunwales amidships and forward. The sternpost remains attached to the stern stringer - the stringer remained in place when the port and starboard quarters move outward - and is seen above the silt. The separation of the gunwale and the port side from the rest of the wreck is evident on the port quarter; 7 futtocks - no longer integrated with the gunwale - protrude from the silt next to the rear bench. The broad stern bench is cut to resemble a wide-U, fabricated to extend forward on the port and starboard sides of the wreck and designed to hold 2 people on each side or 1 person in the stern. A bench near the bow had detached from the watercraft's sides, and MHM contends 2 more benches are located amidships - associated with the oarlocks. Above the turn of the bilge, thin longitudinal stringers are present on both the port and starboard inner hull, attached to the wreck's frames. These stringers provide rigidity to the hull and support the benches throughout the wreck. Small bits of white paint can be seen on the inner and outer hull, including in the seams of the planks inside the bow; caulking may also be present. The hull is filled with silt throughout, with more material amidships and on the port side.



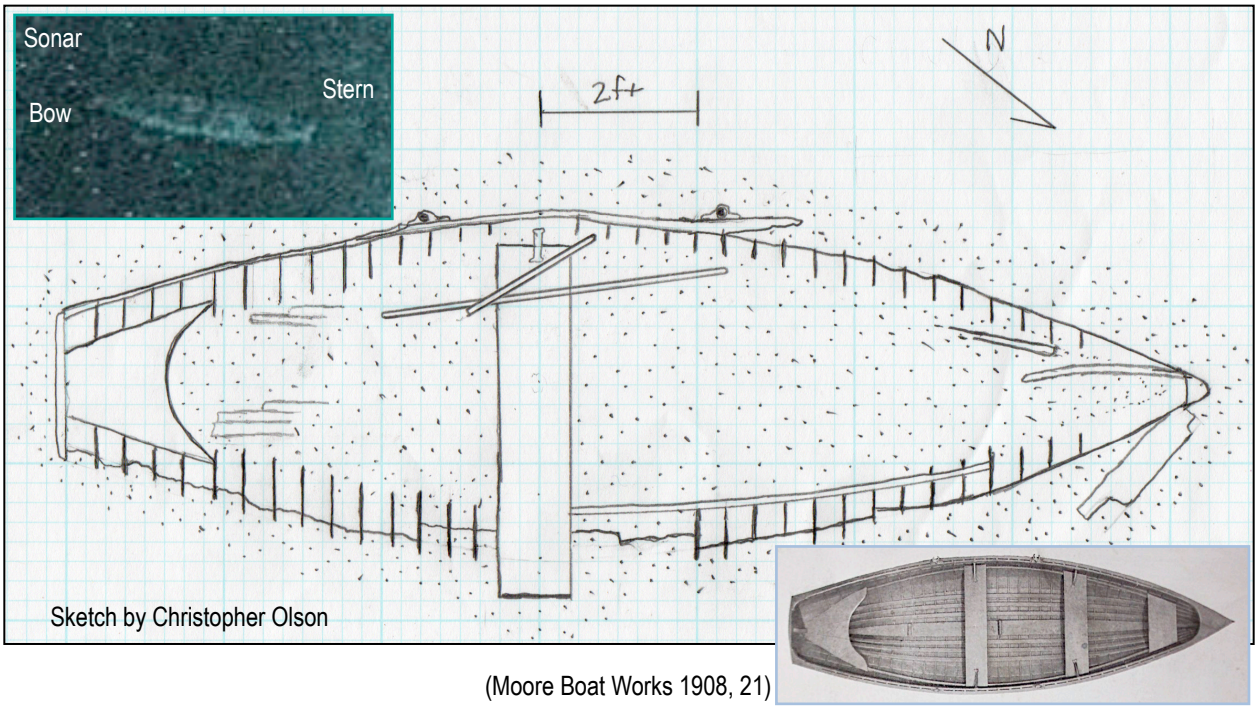
The general condition of the hull is good despite the loosening of the watercraft's port side from the remainder of the wreck, and some damage to the upper strakes and frames at the bow. The stern's construction and the design of the sternpost supports MHM's conclusion that the wreck has a wineglass-shaped transom, even though it is

concealed by silt. In terms of Anomaly 36's manufacturer, the wreck is similar - but not identical - to the 'No. 32 Moore's Lake Minnetonka Family Row Boat' and 'No. 33 Moore's Minnetonka Row Boat', detailed in the Moore Boat Works 1908 catalog. The stern bench configuration is different, but the basic lay-out matches these company boats. MHM contends a construction date of around 1910 is reasonable, and suspects the boat sank around 1920 due to the good condition of her surviving attributes and her partially-buried nature. Further, MHM contends Wineglass Stern Wreck 6 is a member of a Christmas Lake fleet, possibly from the Glen Morris Inn and then the Radisson Inn. MHM submitted an archaeological site form for the Wineglass Stern Wreck 6 to the OSA, and received site number 21-HE-541.



Wineglass Stern Wreck 5 Site, 21-HE-538 (Anomaly 5)

The Wineglass Stern Wreck 5 is 15.40 feet long, 4.40 feet in the beam, and 1.70 feet at the transom. This lapstrake rowboat wreck has outer hull strakes with light inner frames consisting of floors and futtocks. The triangular stempost survives and is intact; it has a hole bored through it that may have served as a towing ring, or once held a towing ring. The gunwale survives on the port side amidships and the quarter; portions of the gunwale on that side of the wreck have fallen outward onto the lake bottom. On the port quarter, a small horizontal reinforcement knee is attached to the gunwale. The port side oarlocks remain attached to the fragile gunwale. The starboard gunwale only survives on the wreck's quarter. Two benches, 1 amidships and 1 at the stern, survive; MHM suspects the watercraft had at least 2 additional forward benches. The amidships bench has been detached from the wreck and it lies in the hull; it has a metal braced still attached. The stern bench is cut to resemble a wide-V, fabricated to fit the wineglass stern shape. The sternpost survives and is attached to the inner hull at the wineglass-shaped transom, extending to the keel outside the hull. A metal fitting is attached to the sternpost and transom, providing strength and support to the stern. The garboard, broad, and bilge strakes on both port and starboard are intact and remained attached to the keel. Further strakes on the starboard side quarter are damaged, while the port quarter strakes become fragmentary near the gunwale. The stern seat is also notched to receive the sternpost. The hull contains an small amount of silt amidships, but the exposed stern area has thin longitudinal ceiling planks that extend forward to the bow. Above the turn of the bilge, thin longitudinal stringers are present on both port and starboard, attached to the wreck's frames. These stringers provide rigidity to the hull and support for the benches throughout the wreck. The general condition of the hull above the silt is good until just below the gunwale, particularly on the starboard side. The surviving gunwale on the port side is very fragile, and the weight of the metal oarlocks are stressing the wood. The transom is infested with tiny roots that are actually holding the inner stern in place.



(Moore Boat Works 1908, 21)

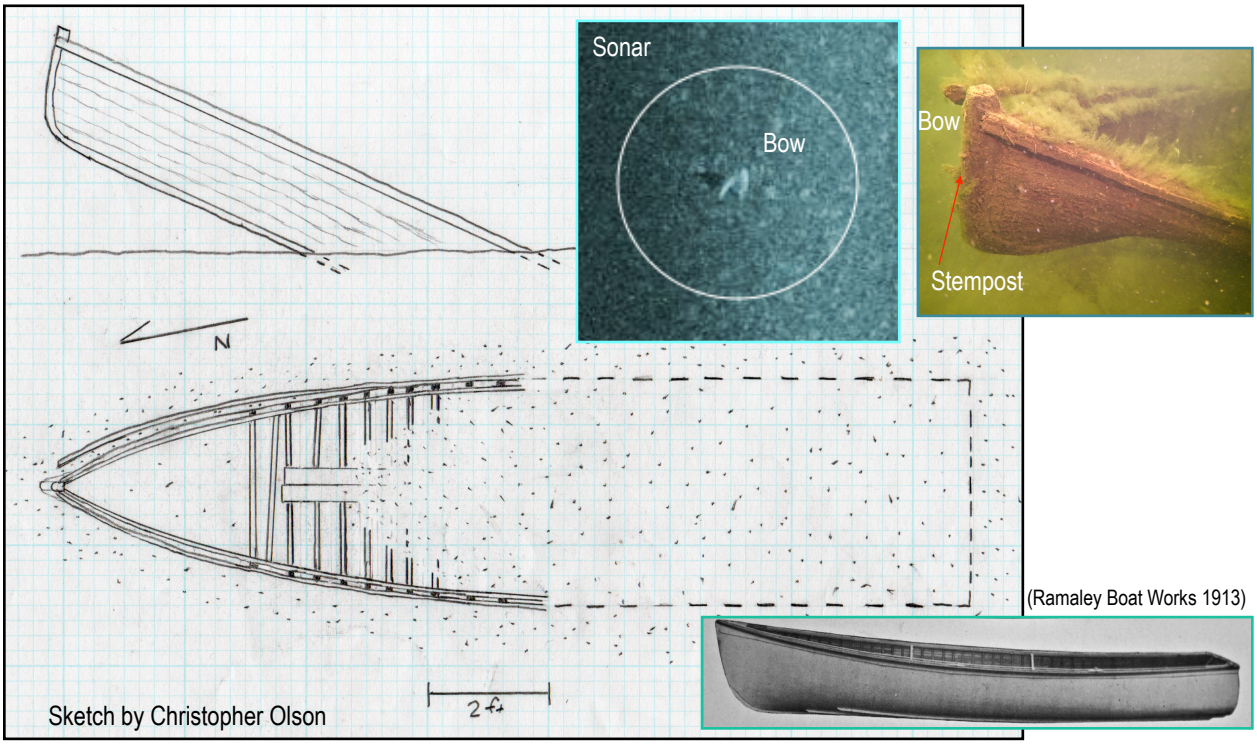
Regardless of the fragmentary condition of the wreck, particularly the gunwale, this watercraft is an excellent example of the wineglass stern type of rowboat. Throughout the hull, white primer or paint is visible under a layer of green on the outer hull and bright blue on the inner hull. In terms of Moore Boat Works, the wreck is a 'No. 33 Moore's Minnetonka Row Boat', detailed in their 1908 catalog - similar to 21-HE-541 above. MHM contends a construction date of around 1910 is reasonable, and she probably sank around 1925 due to the near-perfect survival of her transom, the relatively poor condition of her gunwales, and the lack of silt in her hull. At the time of her sinking, if this timeline is relatively accurate, she may have been owned by the Radisson Inn and might have been a member of their Christmas Lake fleet. MHM submitted an archaeological site form for the Wineglass Stern Wreck 5 to the OSA, and received site number 21-HE-538.

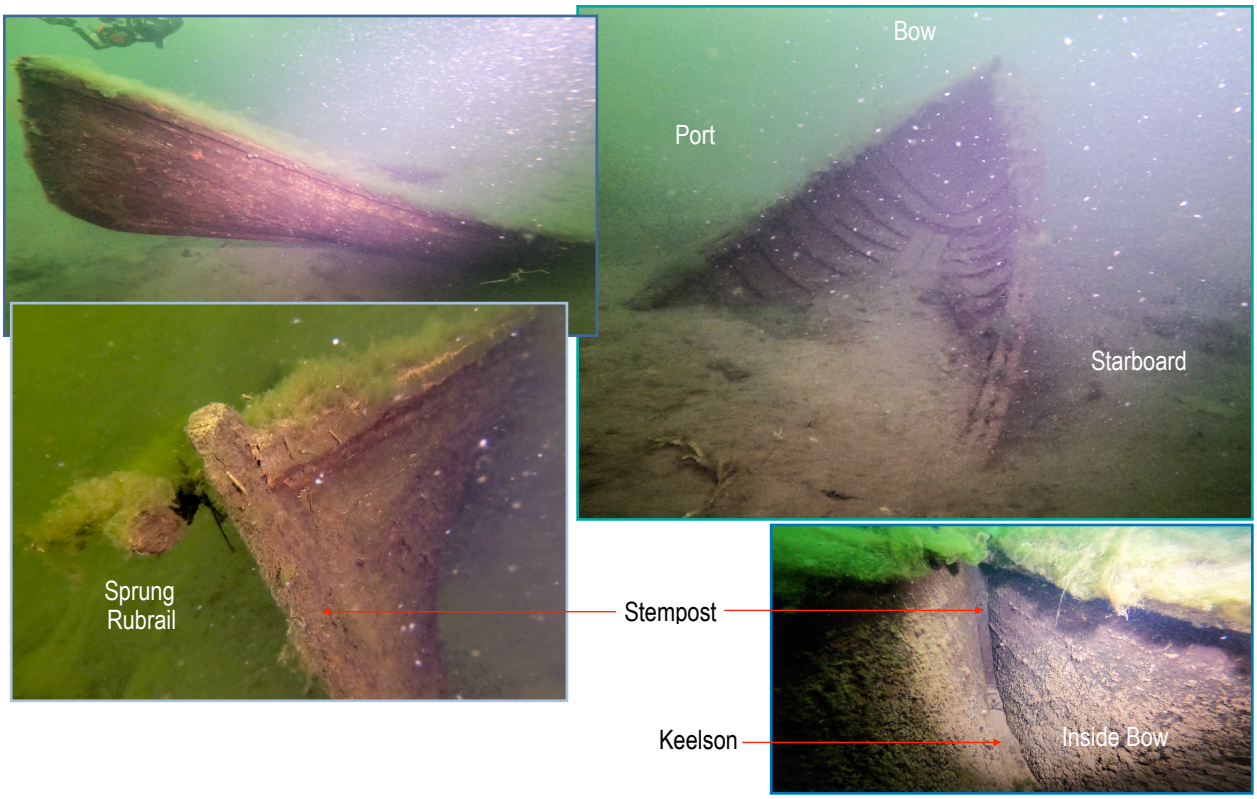


Buried Stern Wreck Site, 21-HE-544 (Anomaly 20)

The Buried Stern Wreck is 15.20 feet long, 3.80 feet in the beam, and 1.60 depth of hold. This carvel-built outboard motor boat wreck is lying with its bow suspended in the water column; 8.00 feet of the forward hull is above the lake bottom. The triangular stempost survives and is intact, rising above the bow's gunwale and fitted into the keel on the wreck's bottom. Inside the bow, 2 bolts with roves are visible, connecting the stempost with the keelson. Her gunwale is intact, comprised of two stringers; the outer

stringer is acted as a rubrail. On the starboard bow, the rubrail has sprung away from the hull and on the port side bow gunwale, several bent nails mark the area of an old fix. The outer hull is comprised of 3-inch wide strakes; on the wreck's bottom, caulking can be seen bulging out between the seams. Comprised of floors and futtocks, 9 U-shaped frames are visible inside the hull. The one-piece design of the frames is unique because usually the floor section of boat frames rabbet into the keelson on both port and starboard. Because of the nature of the one-piece frames, some of them have shifted within the hull of the wreck. The frame type found in the Buried Stern Wreck suggests canoe construction. Further, 2 stringers lie on top of nearly all of the floors, hiding the keelson. The primary purpose of these stringers, along with others that may be on either side of them under the silt, was to provide a flat surface for walking and as a base for a foot brace that are useful when rowing a boat. MHM has determined - through probing - that the transom is square, it is under 3.00 feet of silt, and there is no outboard motor present. The watercraft had benches, of course, but it cannot be determined how many were initially present, nor how many survive under the silt. It is surmised that the boat was filled with rocks or some other heavy objects that shifted to the stern during the wrecking process, causing Anomaly 20 to settle with her bow in the water column. The outer hull appears to have been primarily painted white with a 3-strake-wide stripe that may be yellow or orange. Brighter white caulking is also evident in many places throughout the visible hull. Significantly, the U-shaped one-piece frames are unique for this watercraft type, and may be a signature of boat-builder that MHM has not encountered yet. MHM contends a construction date of around 1920 is reasonable, and the boat probably sank around 1935 due to the near-perfect survival of her exposed hull; her position on the bottom attests to the strength of the boat's keel and its fine construction. Lastly, MHM contends the Buried Stern Wreck is a member of a Christmas Lake fleet, possibly from the Radisson Inn. MHM submitted an archaeological site form for the Buried Stern Wreck to the OSA, and received site number 21-HE-544.

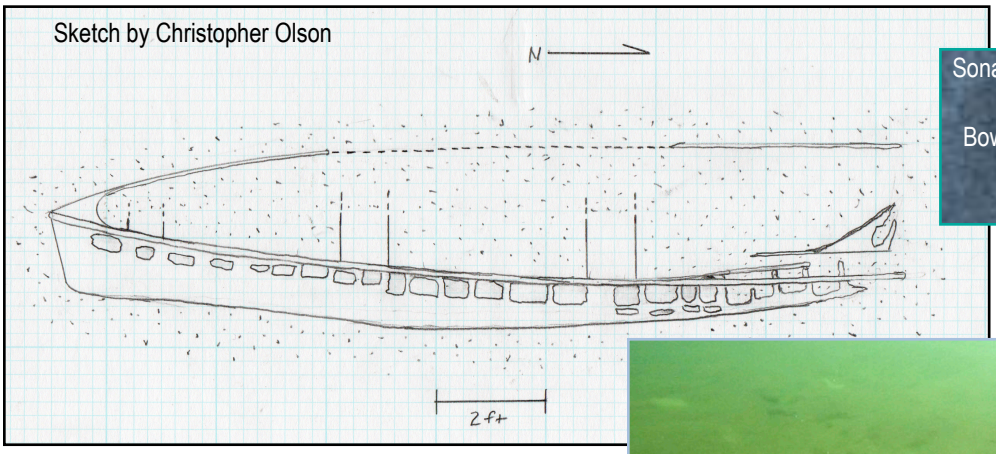


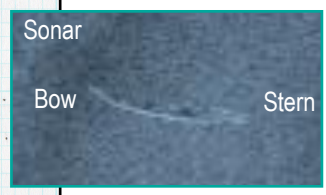


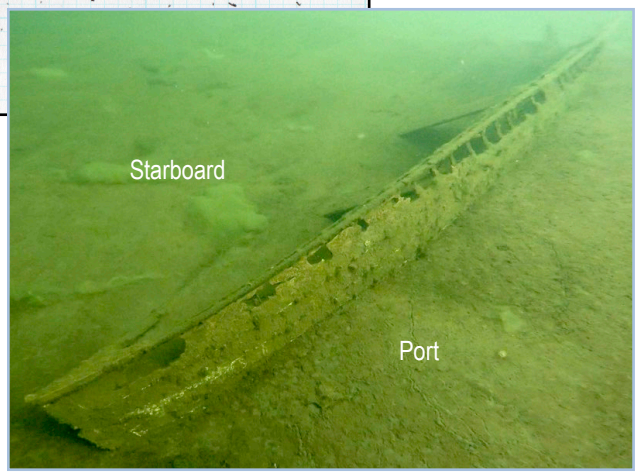
Alexandria Boat Works Wreck Site, 21-HE-542 (Anomaly 25)

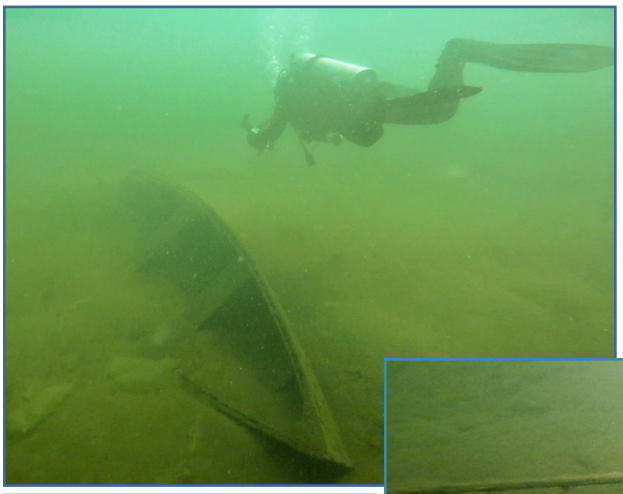
The Alexandria Boat Works Wreck is 15.30 feet long, 3.80 feet in the beam, and with a 2.00-foot depth of hold. This wreck is lying at an angle on her starboard side, with 2/3 of the wreck concealed by silt amidships and on her quarter. The stempost is intact - with the remains of a metal towing loop attached - and the pointed bow is topped with a steel bow casting that identifies the wreck: "Alexandria Boat Works Alexandria Minn". An additional misshapen metal appendage at the tip of the casting suggests it may have had an anchor line guide at one point, but not a complete anchor roller attachment. This carvel-built rowboat wreck has outer hull strakes that are about 3 inches wide, and light inner frames that consist of floors and futtocks. The port side is damaged throughout from the bow to the stern, with a significant number of strakes missing on the quarter. In particular, the sheer strake is fragmentary along the entire port side; it is completely destroyed amidships to the stern and the futtocks are gone as well. Regardless of the missing sheer strake, fragmentary frames, and damaged quarter, the gunwale is intact on the port side suspended in the water column. The visible starboard gunwale is intact, the transom - likely square in design - is missing, and a vertical stern knee remains attached to the wreck's bottom, rising above the silt. The displaced transom may lie on the lake bottom just beyond the wreck, covered in silt. The wreck probably accommodated a motor because her size and heavy construction would allow for the use of first generation outboards. Longitudinal stringers run along the inner hull on the port side, beginning at the port bow about 6 inches below the gunwale. The wreck's 3 surviving benches - near the bow and 2 amidships - rest on this stringer. The larger 2 benches have metal braces that provided additional strength between the seats and the inner hull, holding them securely in place. It is unknown if the stern bench survives in the silt. Three additional longitudinal stringers are visible on the wreck's port side just

above, at, and below the turn of the bilge. Although most of the inner hull bottom cannot be seen, MHM has determined that the Alexandria Boat Works Wreck has a soft chine. Throughout the wreck, a profuse number of round head nails hold the watercraft together as opposed to slot head screws, and many inner hull components with bolts. White paint survives in spots around the outer hull, and black or dark paint survives on the sheer strake and the stempost.













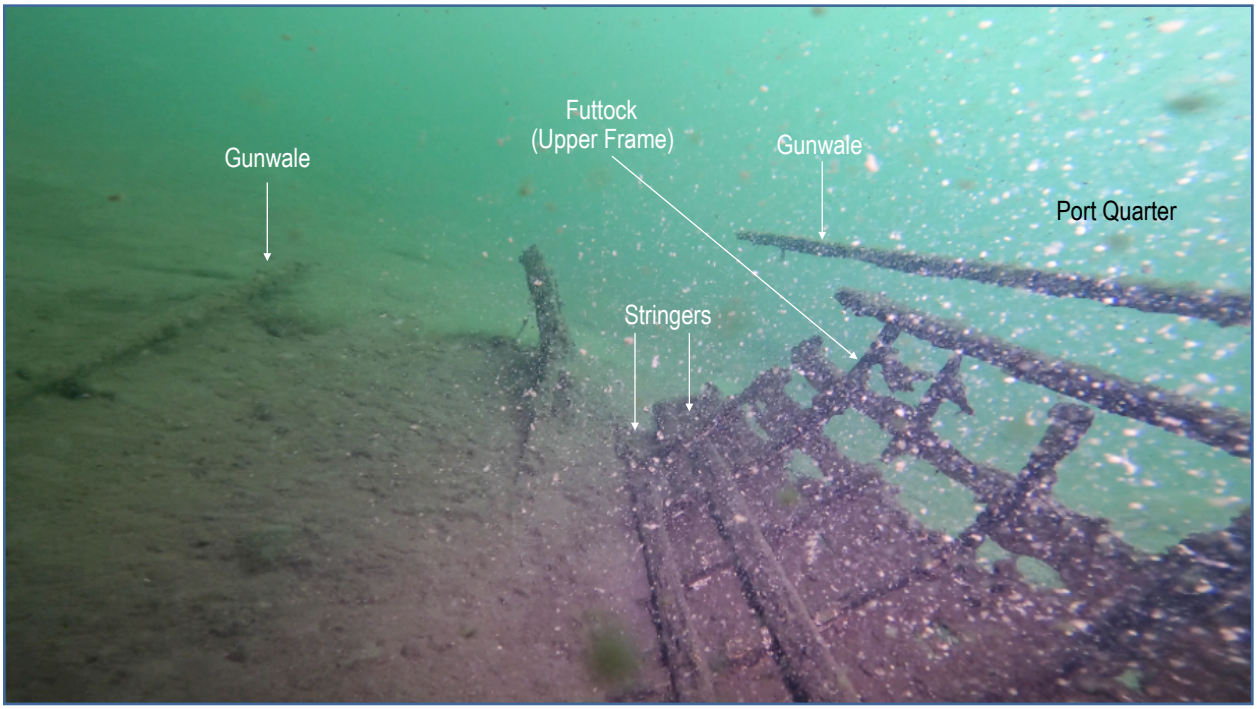
An identical Alexandria Boat Works Bow Casting to the example still *in situ* on 21-HE-542.

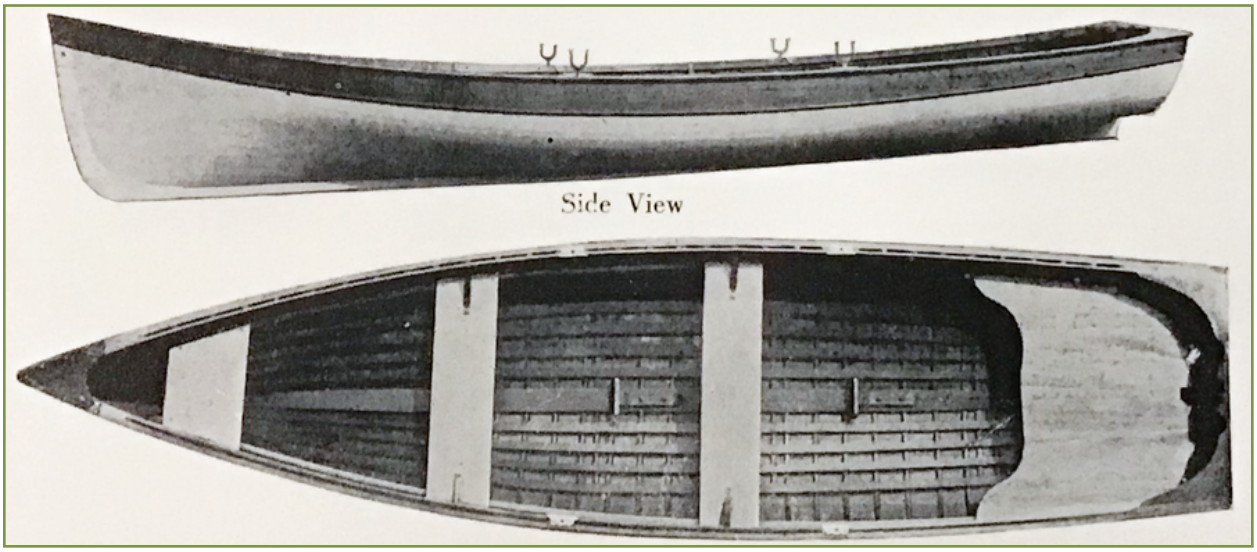






Bench



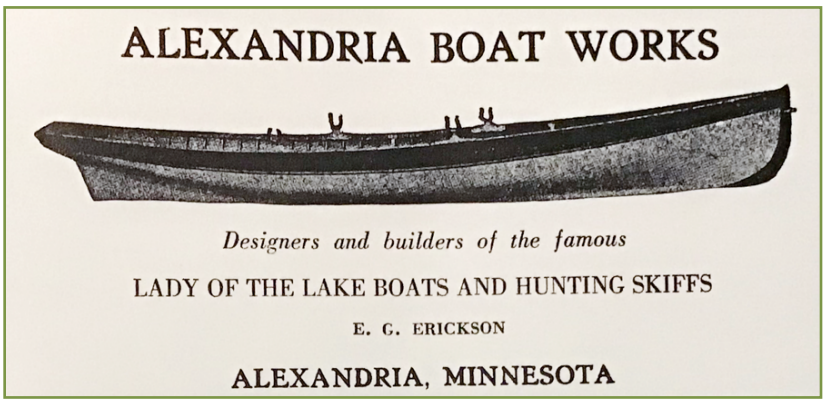


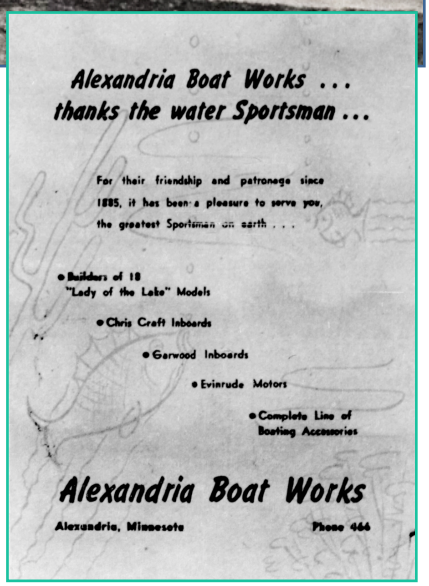
An Alexandria Boat Works 'Lady of the Lake' 17-foot watercraft. This vessel is identical or nearly identical to 21-HE-542; the stern transom and bench design is likely very similar to the wreck (Speltz 1982, 41).

The Alexandria Boat Works was founded in 1885 by Erick Erickson, aka 'Boat Erick'. During the early years of his enterprise, he primarily constructed lapstrake rowboats that were in great demand on the lakes around Alexandria in Douglas County. In 1902, Erickson developed the 'convex-concave' construction technique that eliminated the need for caulking a boat's seams. This carvel-type of construction for small strip boats allowed for the edges of the strakes fitting into their neighbors. Every season, 2-3 days of soaking would swell the boat's seams and the watercraft became water-tight. It must be noted that numerous small boat builder in the early 20th Century laid claim to 'inventing' the convex-concave construction style. With this 1902 ABW date as a starting point for determining the age of this site, MHM considered the design of the steel bow casting attached to the wreck. Several designs of ABW castings were identified through research, and MHM is confident that the style and construction of the casting on the

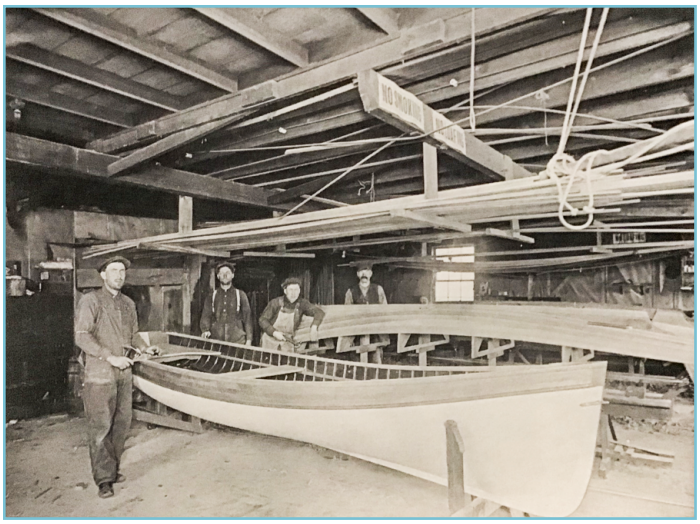
wreck is an early form. Later casting versions have fancier script and/or are cast in non-corroding aluminum, a post-World War II attribute. Hotels and guest houses during the late 19th and early 20th Centuries west of the Twin Cities maintained fleets of these small watercraft for their patrons; this was true on Christmas Lake at the Glen Morris Inn that became the Radisson Inn, and of course on nearby Lake Minnetonka. Based on the wreck's partially buried condition, the use of flat head nails as opposed to wood screws in her construction, and the simple design of the bow casting, MHM contends a construction date of around 1920 is reasonable. At that time, the Radisson Inn had small boats of this type in its 'fleet'. The slightly heavier construction of Anomaly 25 - compared to the lighter wineglass stern boats - suggests she may have had a life span of 20 years or so. Further, in the case of the Alexandria Boat Works Wreck, the repeated exposure to hot summers and then cold winter storage that expanded and shrunk the wood would have less detrimental effects compared to a clinker-built vessel. MHM contends the boat sank around 1940 due to the good condition of her surviving attributes - regardless of the port side damage - and her partially-buried nature. MHM submitted an archaeological site form for the Alexandria Boat Works Wreck to the OSA, and received site number 21-HE-542.







Alexandria Boat Works in Alexandria, Minnesota; note the completed wineglass stern vessels outside the building. Ad for the company (*Minneapolis Sunday Tribune Picture Magazine* 1950; Speltz 1982, 41, 46).







Alexandria Boat Works shop and a 'Lady of the Lake Boats' ad (*Minneapolis Sunday Tribune* 1929; Speltz 1982, 42).

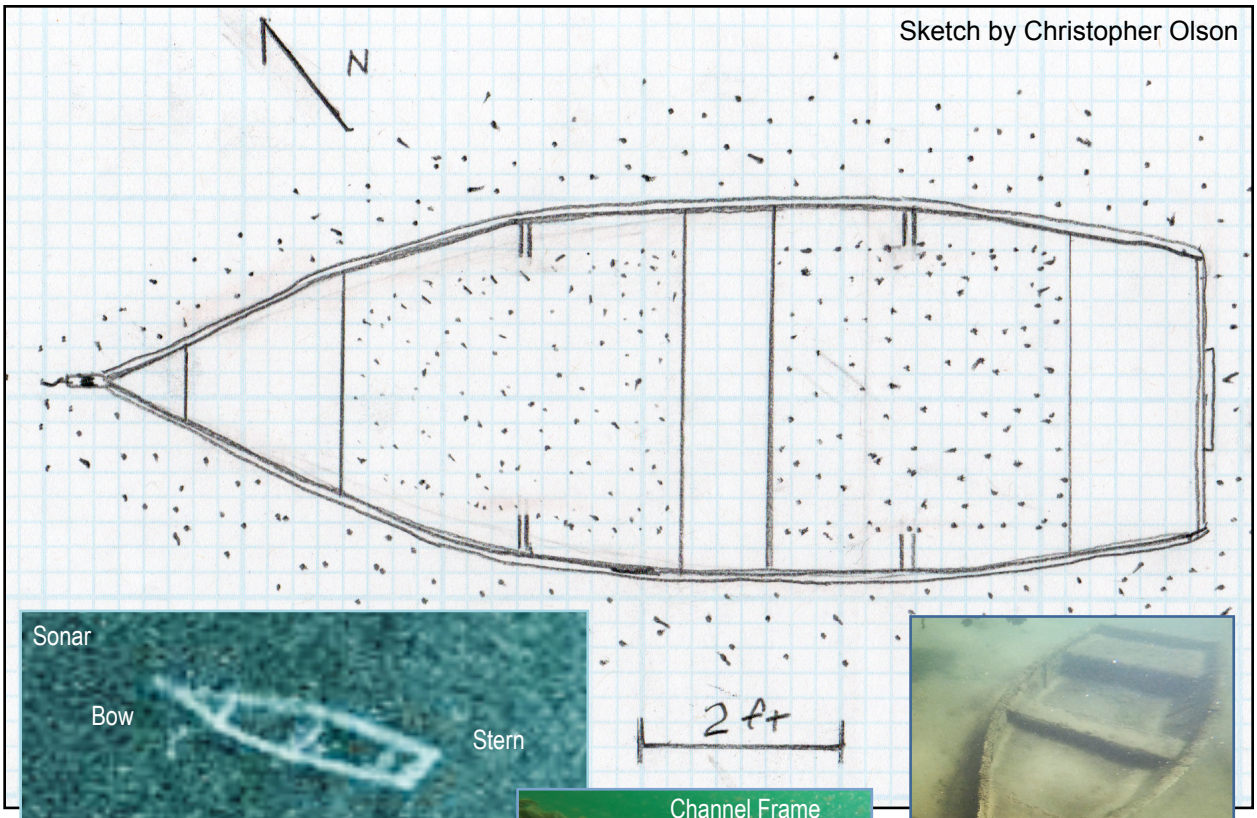


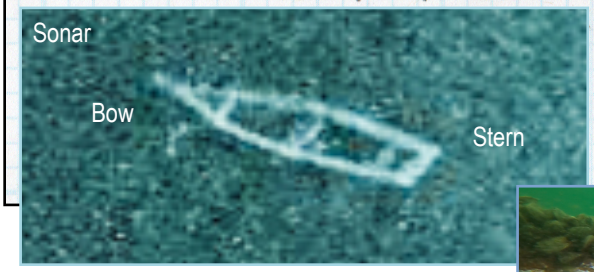


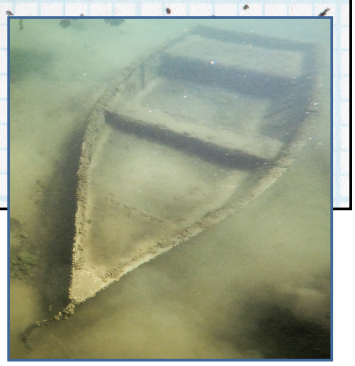
The 2 images above depict the Egloff Family's long-lived Alexandria Boat Works watercraft in the 1930s. The transom image of the boat to the left is likely how 21-HE-542's stern was designed (Courtesy of Dave Egloff).

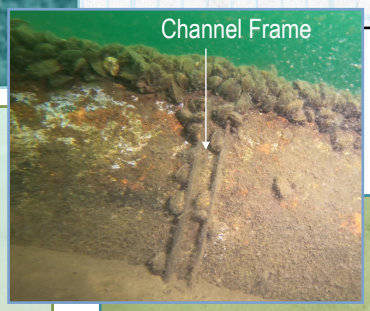
Steel Outboard Motor Boat Wreck Site, 21-HE-545 (Anomaly 9)

The Steel Outboard Motor Boat Wreck is 11.70 feet long, 3.60 feet in the beam, 2.80 feet wide at the transom, with a 2.80 depth of hold. The pointed bow has a towing loop and anchor roller combination protruding from it, a length of rope, and a small triangular sheet metal deck. The square transom has sharply pointed corners and a square wooden motor board attached to it on the outer hull at the centerline. A corresponding small inner wooden motor board is located along the centerline above the rear bench. The extruded steel gunwale was created by the shaping of the metal itself, bent at a 90-degree angle outward from the hull. The sheets of steel that comprise the hull were held together by welded seams; 2 seams are found on both the port and starboard bow, the pointed bow is welded together, and the both quarters are welded together. Two sets of channel frames are located on both starboard and port, fore and aft; these steel supports had strength to the hull. The wreck has 3 benches; the wide flat examples at the bow and stern are enclosed and were designed to trap air to act as flotation. The amidships wooden bench is supported by a wide steel stanchion on the centerline and brackets on port and starboard. MHM suspects 2 bumps on both port and starboard aft of the middle bench may be oarlocks that are obscured by thick layers of zebra mussels. The wreck's bottom is under silt, but the hard chine is visible on both the port and starboard quarters at the stern, indicating she has a flat bottom - also with welded seams.

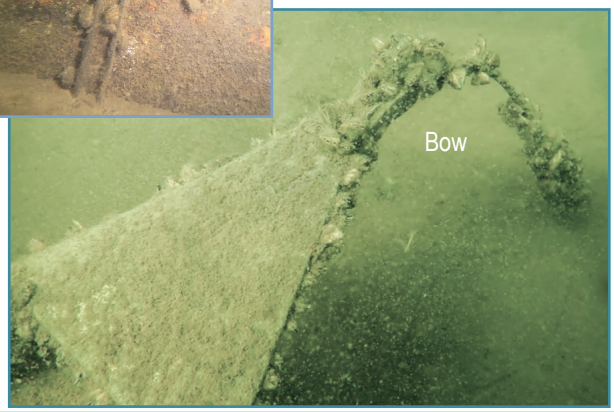

Sketch by Christopher Olson
N
2 ft

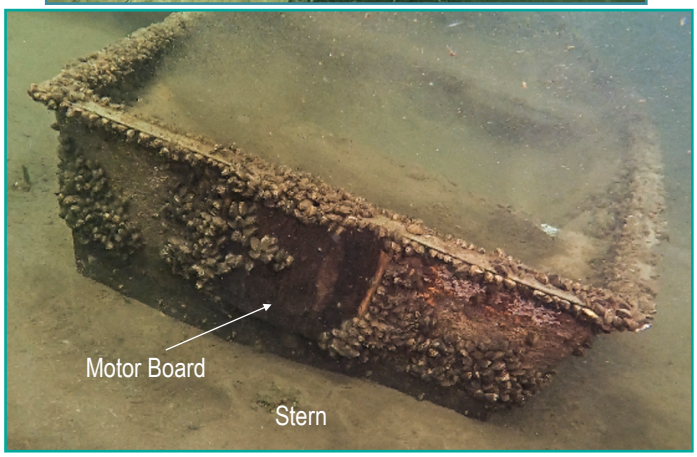

Sonar
Bow
Stern



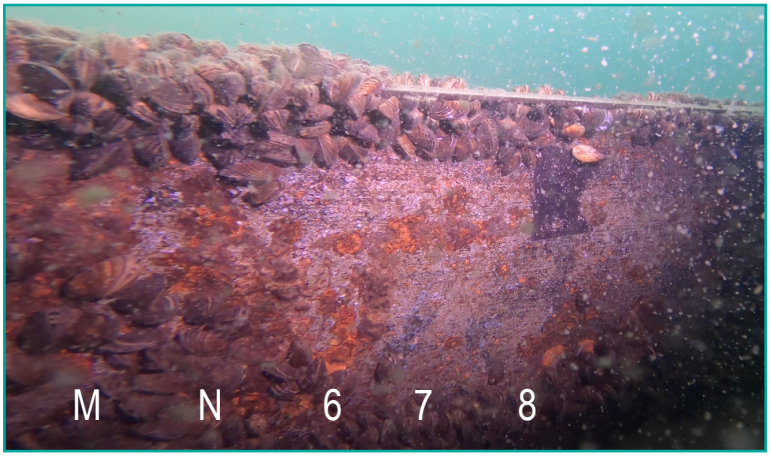

Channel Frame


Port
Quarter
Starboard

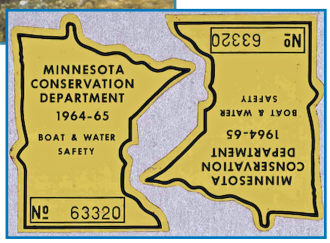

Bow

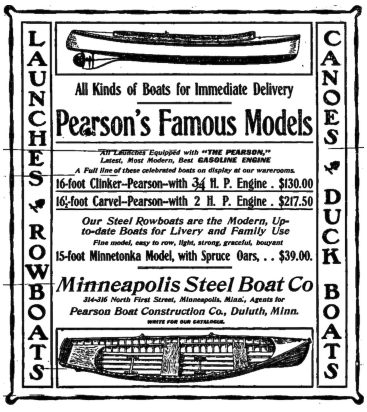

Motor Board
Stern

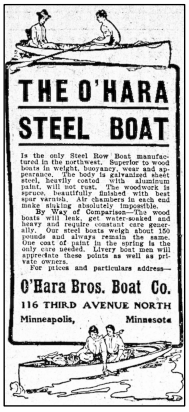
The outer hull has some surviving white primer or paint, with a layer of blue paint in spots. A blue Minnesota registration validation sticker is on the starboard bow. While it has deteriorated somewhat, certain discernible attributes point to particular validation years, and MHM has determined the sticker on Anomaly 9's hull is from 1968-1969.[2] Large numbers are painted on the starboard bow under the validation sticker, what appears to be a rust-lined '6' and a hand-painted '7' and '8' - in blue. MHM contends these numbers are part of the watercraft's registration number; without the entire number, no more information can be obtained from '6 7 8'. MHM contends the Steel Outboard Motor Boat Wreck was constructed in the 1930s. Based on her validation sticker and lack of sediment build-up outside and the small amount inside the wreck, MHM suggests a sinking date of 1969 is reasonable. Further, Anomaly 9 may have been part of a fleet used by Christmas Lake Cabin patrons from the 1940s-1950s, and those of the Christmas Lake Resort that operated in the 1960s. One of the earliest manufacturers of small steel boats was the W. H. Mullins Company of Salem, OH; prior to 1905, Mullins primarily constructed row boats. Also, some Minnesota companies produced small steel boats in the early 20th Century including Pearson's of Duluth, the Minneapolis Steel Boat Company, O'Hara Brothers Boat Company, and the Sanderson Boat and Engine Company (*Minneapolis Journal* 1905a; *Minneapolis Tribune* 1904; W. H. Mullins Company, 1907). MHM submitted an archaeological site form for the Steel Outboard Motor Boat Wreck to the OSA, and received site number 21-HE-545.













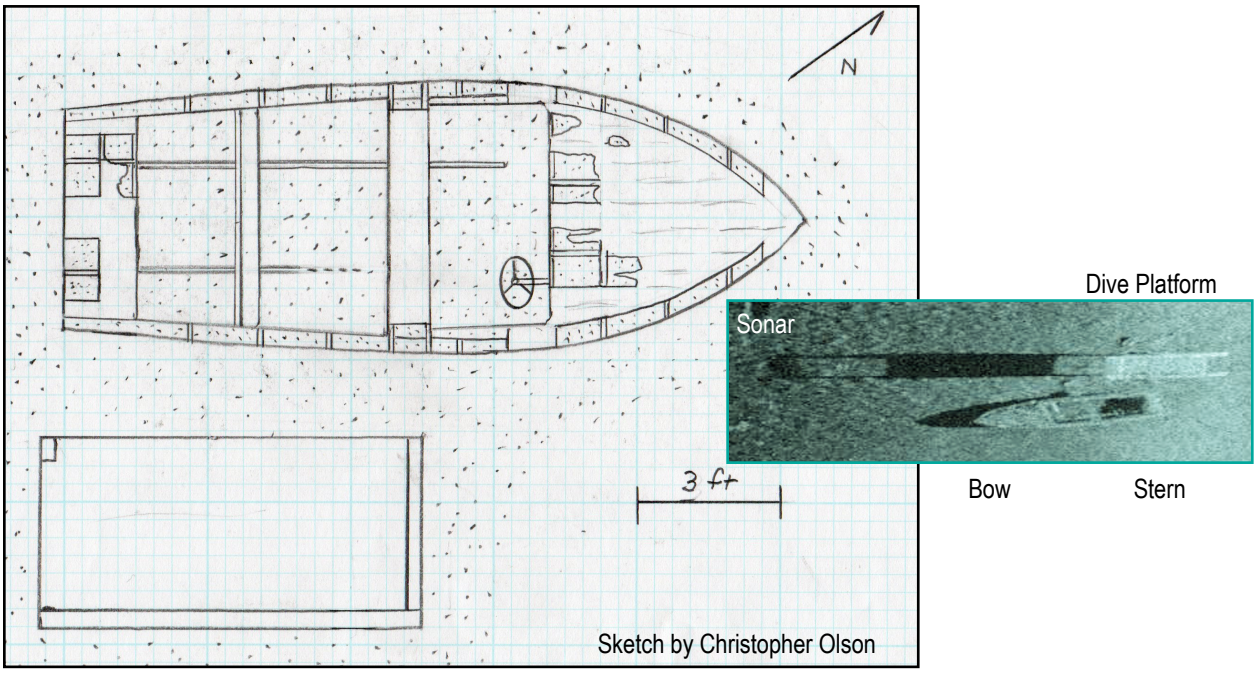
The roughly painted registration numbers and letters on the starboard bow of 21-HE-545 are below a dark blue 1968-1969 validation sticker. The yellow set of 1964-1965 stickers reflect the design of the wrecks' dark blue example.

Three ads for steel watercraft built or available in Minnesota in the early 20th Century (*Minneapolis Tribune* 1904; *Minneapolis Journal* 1905a; W. H. Mullins Company 1907).

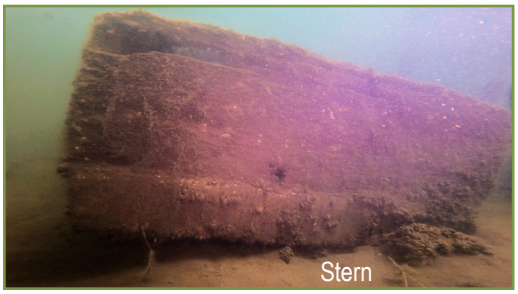
[2]Firstly, one year can be discerned on the sticker - the first number on the effective dates line - 1968. Further, the design of the validation sticker on Anomaly 9 has words placed in groups that match the style that was used until 1970, the system in place that stickers were valid for only 2 years ended in 1970, the 1969-1970 stickers were orange, and the rectangular box (sometimes white) on the bottom of stickers that contained the vessel's registration number was no longer used by 1969.

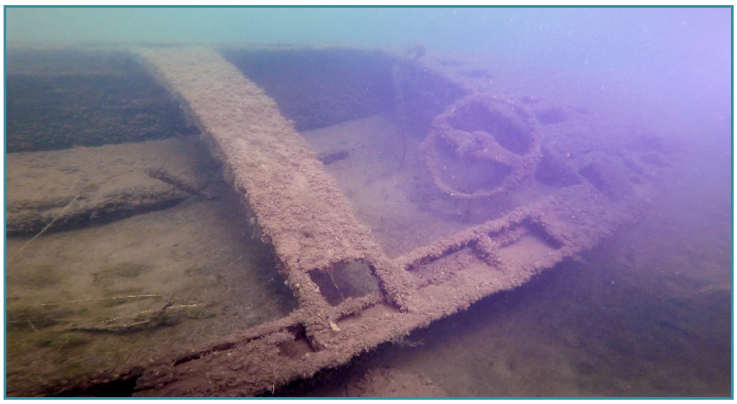
Utility Wreck and Dive Platform Site, 21-CR-171 (Anomalies 1 and 11)

The Utility Wreck is 15.50 feet long and 5.80 feet in the beam, with a 2.40-foot depth of hold. This carvel-built inboard motor boat wreck has wide strakes that exhibit some damage on both port and starboard, and a pointed bow with an intact stempost - the keel is buried in silt - and large foredeck. The longitudinal deck planks are damaged primarily near the dashboard and a missing caprail on the gunwale exposes 3 athwartships deck beams. Slot-headed wood screws are seen throughout the wreck; some fasteners may be round-headed nails as well. The gunwale is intact throughout the wreck, but the caprail is missing. Due to the missing caprail, the wreck's futtocks can be seen between 2 deck-level stringers; the outer stringer would act like as a rub rail. The transom stern has a slight tumblehome and an exhaust pipe hole is seen; a small deck - damaged in places - covers the still-present gas tank. The metal tank is rounded with straps holding it in place. At the waterline, a hard chine on both port and starboard acts as a sort of splashrail, while the gentle V-hull bottom disappears into the silt. Amidships, a slightly arched deck beam that served as the attachment point for the now-missing bench back for the watercraft's operator, is set into both the port and starboard gunwale.Two stanchions support the beam. The arched dashboard has 5 empty holes that once held the speedometer and other indicators, and the white steering wheel has vertical line decorations on the spokes. Two longitudinal stringers run from under the now-missing front bench to the gas tank. An athwartships floor beam with a ledge marks where the aft edge of a doghouse once stood. The forward edge of the doghouse would have butted up against the bulwark created by the front bench back. The engine that would have been under the doghouse is also missing. Further aft of the doghouse, additional shorter longitudinal timbers held the base for the watercraft's aft bench. Two cables are seen running fore and aft; they are probably steering and fuel lines. Most of the inside bottom of the hull is covered in silt, covering the floors and keelson. MHM suggests the hull was highly stained and varnished, not painted, but a white line is painted near the waterline on port, starboard, and the transom; the bottom was probably painted red.



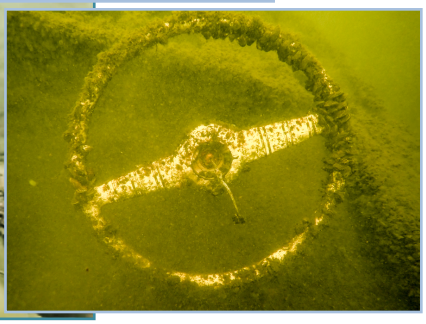

Port
Starboard
Bow


Stern






Dashboard

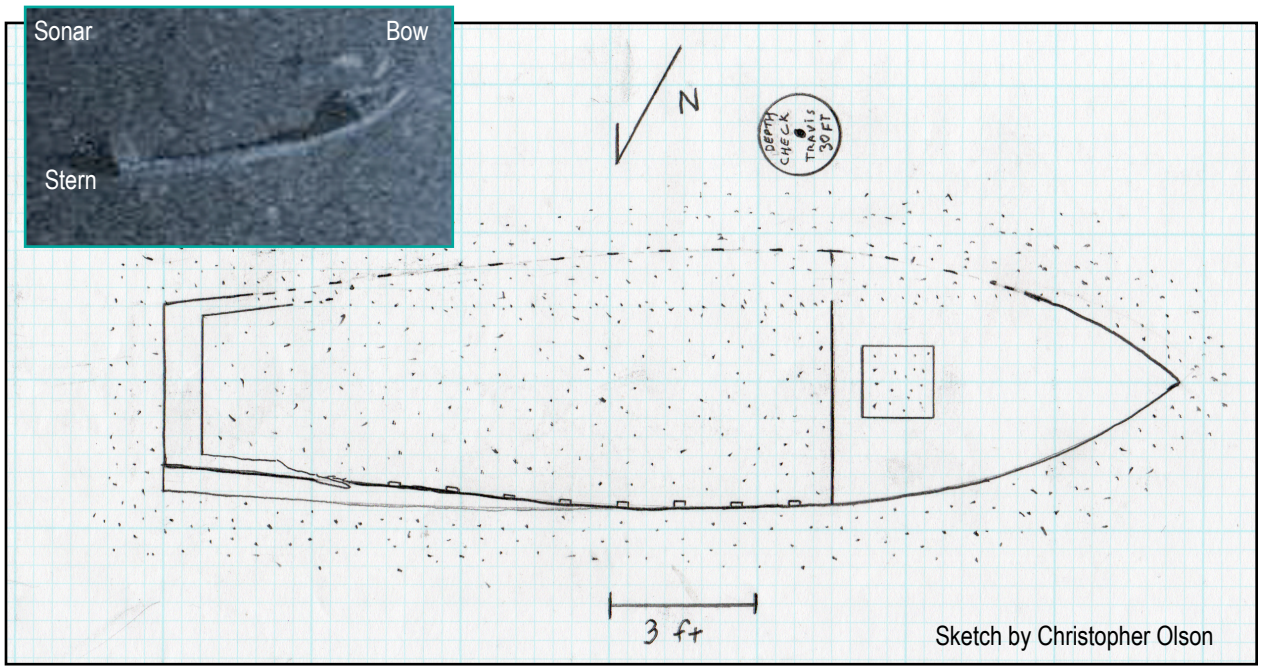




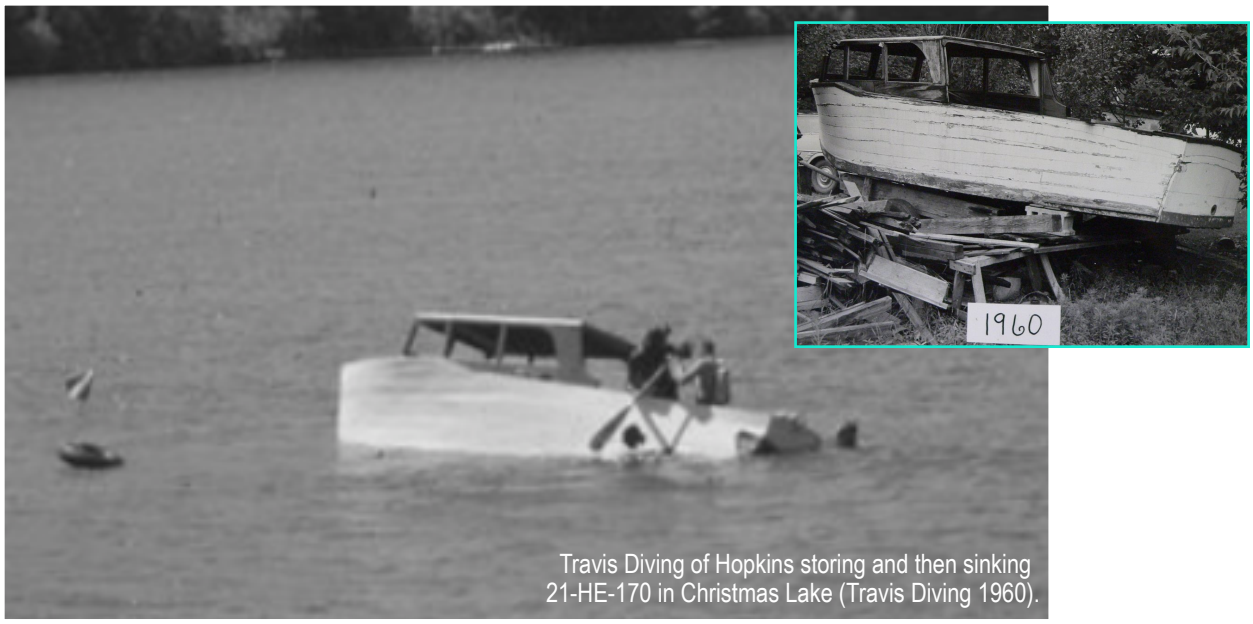
In terms of a construction date for Anomaly 1, based on the use of slot-headed wood screws as opposed to Phillips head screws, the watercraft was constructed before 1936 - the year when the use of Phillips head screws became common. Further, when compared to similarly designed wooden utilities, the boat's design was popular from the 1920s-1960s. In terms of a sinking date, MHM suggests the Utility Wreck was intentionally sunk after stripping her engine, doghouse, and benches - around 1960. Additionally, a wooden Dive Platform (Anomaly 11) was submerged next to Anomaly 1, anchored by large concrete chunks attached with rope. The Platform would have been a destination during SCUBA training dives where students would perform certain tasks prior to attaining their SCUBA card. One task would require the diver to remove their mask, put it back on, and clear it of water. Anomaly 11 is 8.00 feet long and 4.00 feet wide and is suspended in the water column by 5 stilts. MHM submitted an archaeological site form for the Utility Wreck and Dive Platform Site to the OSA, and received site number 21-CR-171.

Cabin Cruiser Wreck Site, 21-CR-170 (Anomaly 8)

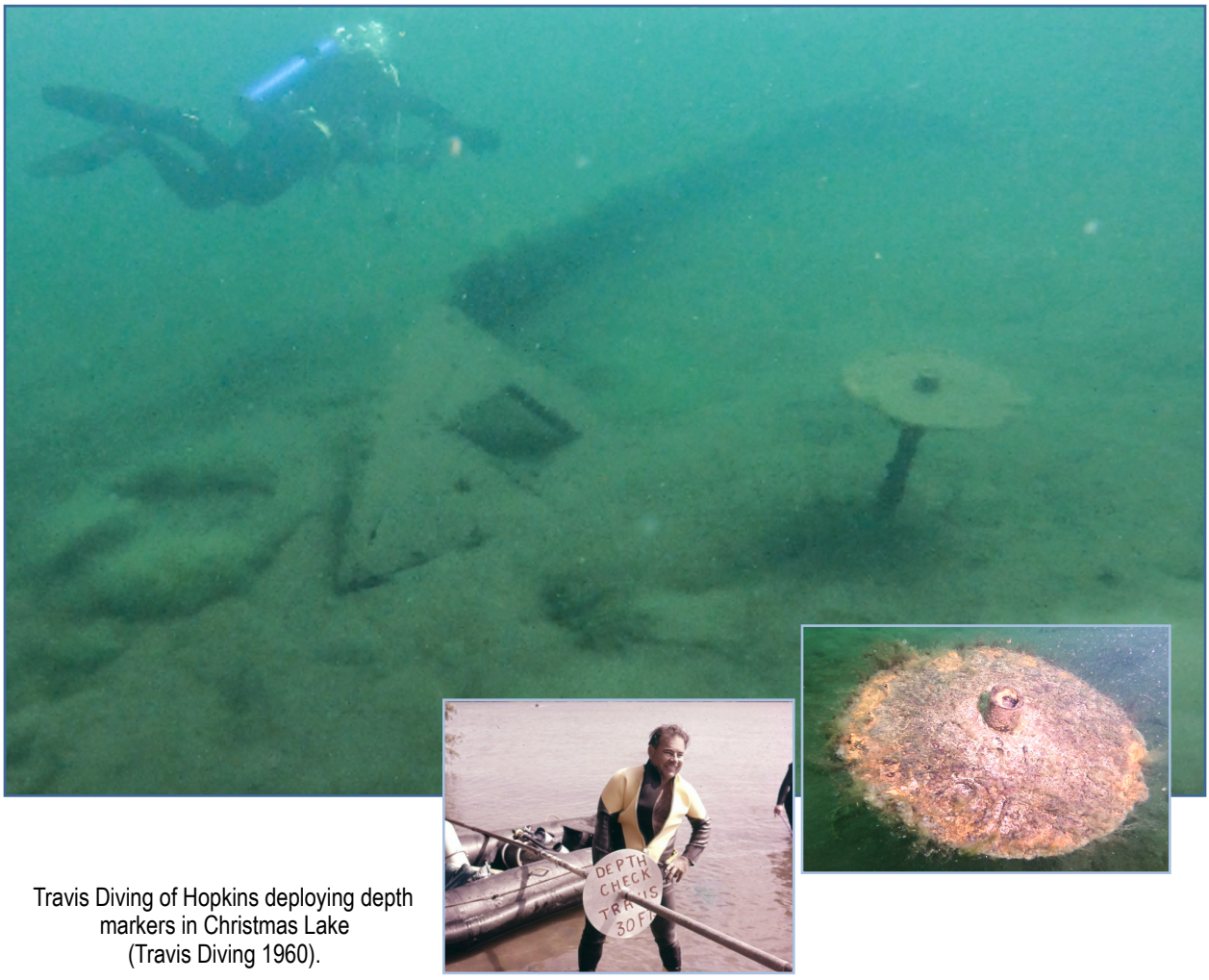
The Cabin Cruiser Wreck is 20.50 feet long, 5.10 feet in the beam, 3.30 feet in the transom, and a 2.90-foot depth of hold. This carvel-built inboard motor boat wreck is lying at an angle with her port side and the inside bottom of the hull concealed by silt. The stempost is also buried in silt and the pointed bow has a substantial deck that consists of longitudinal planks. A square hatch is cut into the deck that is framed with small beams; it currently has no cover and a large deck beam supports the deck in the hold. The hull is painted white, has substantial outer hull strakes, and 14 heavy inner frames - only visible on the starboard side - comprised of 2 or 3 overlapping pieces of wood that disappear into the silt. The 2 aft-most frames have additional wooden pieces - probably beams to support a deck - extending toward the wreck's midline into the silt. MHM contends the watercraft has floor sections as part of the over-all frame system, but they are covered with silt. Long rectangular in cross-section stringers - 4 can be seen on the starboard side - extend from the stern quarter to the bow. At various points throughout the inner starboard hull, additional wider sections of wood were placed between the stringers for strength or as hull attachments for currently missing construction attributes. On the visible starboard side, the gunwale is primarily intact, with the caprail completely intact on the quarter and at the stern. As a unit, the caprail portion of the gunwale has shifted toward the port side during the wrecking process - and the port caprail is visible just above the silt. The transom stern is intact but partially buried on the port side with a significant section of decking that served to cover the gas tank and possibly parts of the engine. The aft section of the watercraft was constructed with a significant tumblehome. The starboard gunwale just aft of the junction where the forward deck began shows significant damage. MHM has determined this area was the attachment point for a now-lost cabin. In terms of a construction date for Anomaly 8, when compared to similarly designed cabin cruisers, MHM contends the watercraft was constructed in the late 1930s-early 1940s and photographic evidence exists to solidify a sinking date of 1960. Additionally, the Cabin Cruiser Wreck site includes a water depth marker placed next to the hull by the divers responsible for intentionally scuttling the



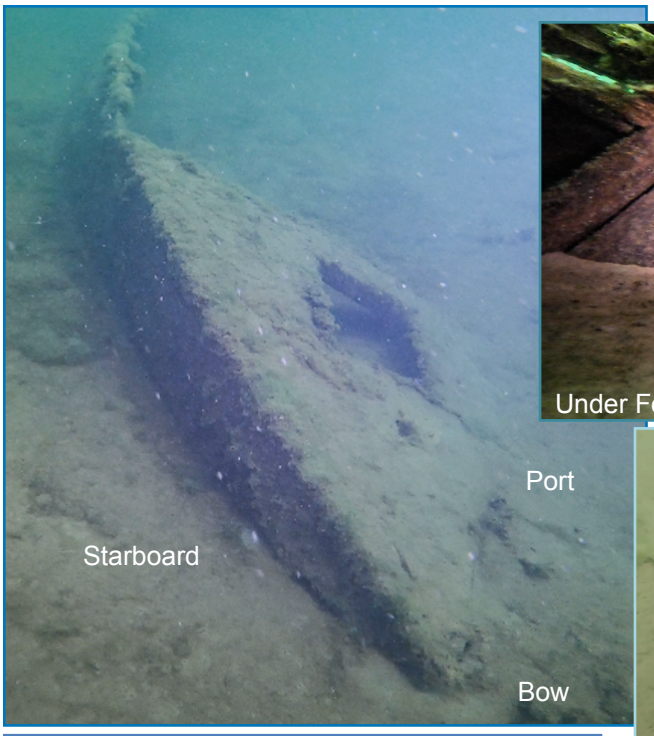
boat as a dive training site. The marker reads "DEPTH CHECK TRAVIS 30 FT.", with 'Travis' referring to a dive shop that operated during the 1950s-1960s. MHM submitted an archaeological site form for the Utility Wreck and Dive Platform Site to the OSA, and received site number 21-CR-170.



Travis Diving of Hopkins storing and then sinking 21-HE-170 in Christmas Lake (Travis Diving 1960).



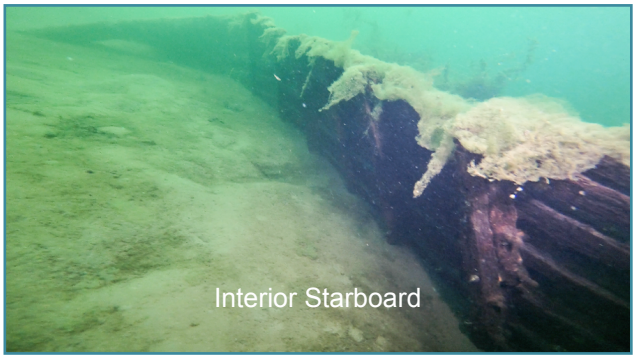
Travis Diving of Hopkins deploying depth markers in Christmas Lake (Travis Diving 1960).

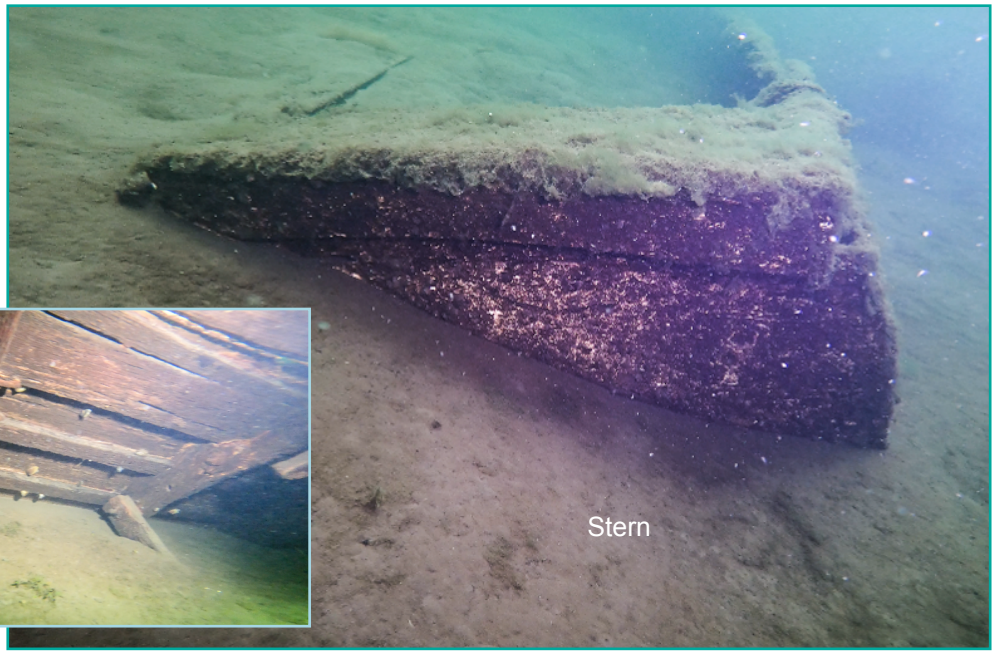

Starboard
Port
Bow


Under Foredeck


Hatch
Bow


Under Foredeck

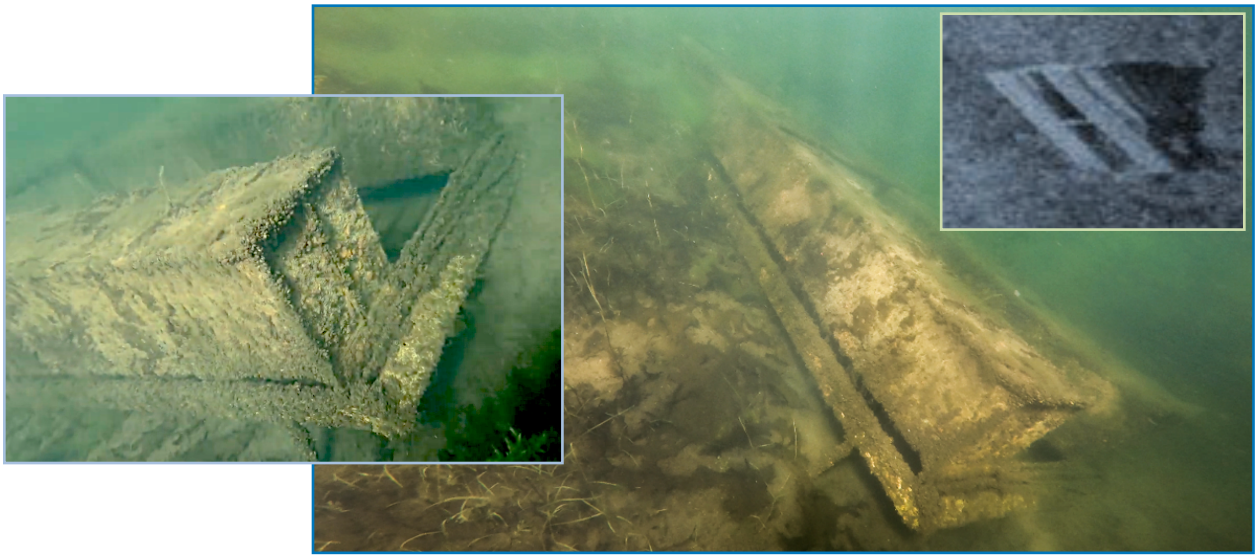

Interior Starboard


Stern


Interior Starboard

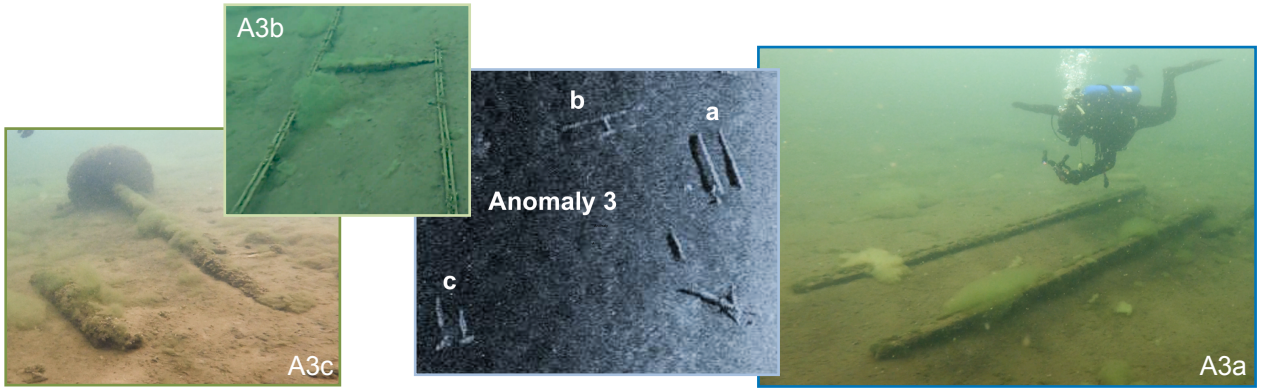
Capsized Pontoon Raft, Anomaly 6

When MHM recorded the first sonar image of Anomaly 6, it was interpreted as an overturned pontoon boat. After investigation by SCUBA, MHM identified the site as a large non-motorized Pontoon Raft with square pontoons. The overall length of the raft is 16.20 feet and it is 6.10 feet wide. The pontoons are also 16.20 feet long and each is 1.70 feet wide. An athwartships beam that served as a strengthening brace is found on one end of Anomaly 6 as well as amidships. Since the Pontoon Raft is capsized, the exact nature of the deck is unknown, but it is raised off the pontoons and stanchions that would hold up a railing can be seen. However, any surviving railings are buried in the silt and the details of the deck cannot be discerned. The underside of the deck's bottom has many athwartships beams and a beam down its centerline. A line is attached to the athwartships beam at the one end of the raft.



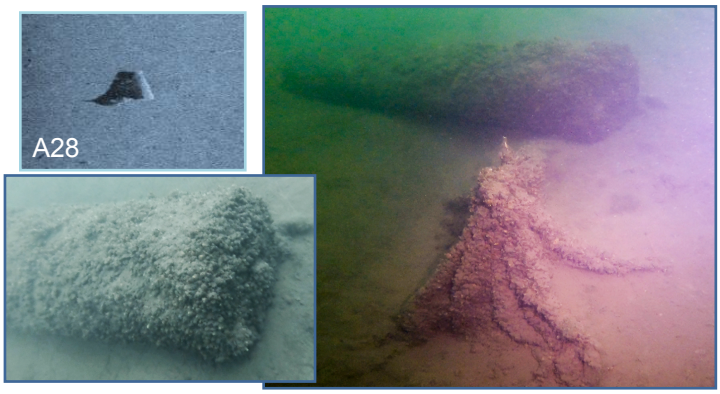
Marine Railway, Anomaly 3a-3d

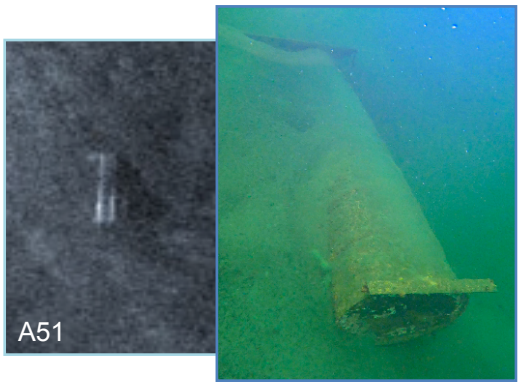
The Marine Railway site is comprised a set of rails that has broken into 2 pieces lying near each other, 2 wheels, each with an axle, and an old headlamp that may or may not have been originally associated with Anomaly 3. Each set of rails is 6.00 long and 2.80 feet wide, while the wheels with axles are 8.70 feet long. The wheels are 2.40 feet in diameter, have treaded tires, and white hubs. The headlamp was found sitting next to the axles; it is comprised of the lamp body with no light.



Pontoons, Anomalies 28, 51

The 2 pontoons, Anomalies 28 and 51, are both round in cross section. Anomaly 51 has beams on both ends that would have supported a deck. Anomaly 51 is 9.40 feet long with a 1.90 diameter. Anomaly 28 is 6.10 feet long and 1.50 feet in diameter. The pontoons are not near each other, and their significantly different sizes indicates they were not associated with the same pontoon boat or raft. Anomaly 28 was likely a component of a recreational anchored raft and Anomaly 51 was probably part of a watercraft.

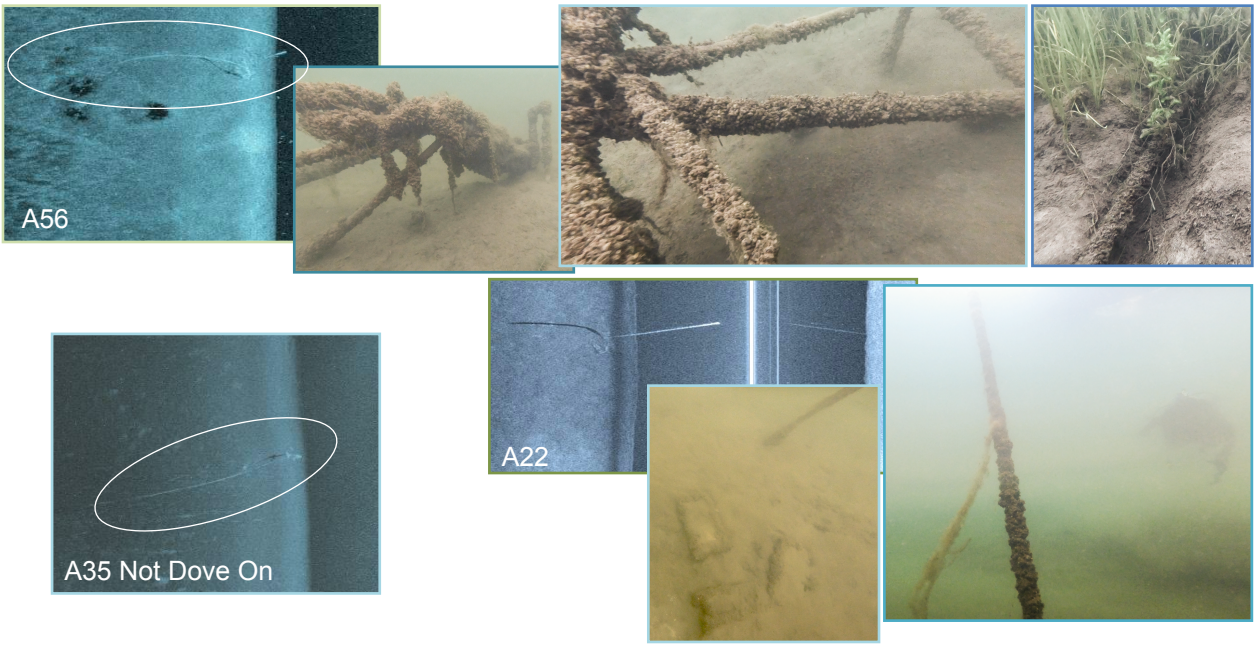




Water Intakes, Anomalies 12, 56, 35, 22

The sonar signature of Anomaly 12 suggested the outline of a wreck with a rounded bow. Conducting dive reconnaissance on the anomaly proved how some sonar images are misleading, and can lead to entirely inaccurate hypotheses. The reason for the misconception, that the object was a wreck, primarily stems from the angle of 2 different sections of what turned out to be a bent 20-foot long pipe system for taking water from the lake to a house. Anomaly 56 is comprised of a toppled tripod that supported a pipe in the water column that runs toward shore. The end of the pipe has a mesh bag wrapped around it to sieve the water during intake. The exposed section of the pipe is 40 feet long; it disappears into the silt and weeds in shallow water. Remains of a concrete pump house that would push the water up the hill on this section of Christmas Lake survive on the shoreline. Anomaly 35 has a nearly identical acoustical signature as Anomaly 56; MHM contends it is also a tripod-type water intake. It was not dove upon. Anomaly 22 is the remains of a water intake system that is comprised of a pipe that stands up in the water column about 6.00 feet and a series of concrete blocks that would have held the system in place. All of the buildings on the lake depended on it for water until relatively recently.



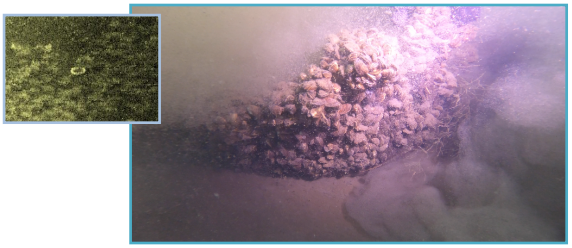


Building Wall, Anomaly 18



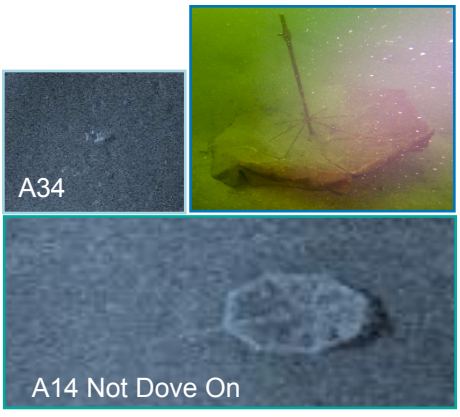
During the sonar survey and the initial data review, MHM surmised that Anomaly 18 was a section of a dock. Dive Reconnaissance proved that the object is a section of an older building, probably part of the wall of a 19th Century cottage. Anomaly 18 could have been blown into the lake on May 6, 1965, when Christmas Lake was hit by an F-4 tornado - referred to as Tornado #2 - that passed the lake close to its eastern shoreline (National Weather Service ND). The anomaly is 13.70 feet long and 6.10 feet wide.

Barrel, Anomaly 62



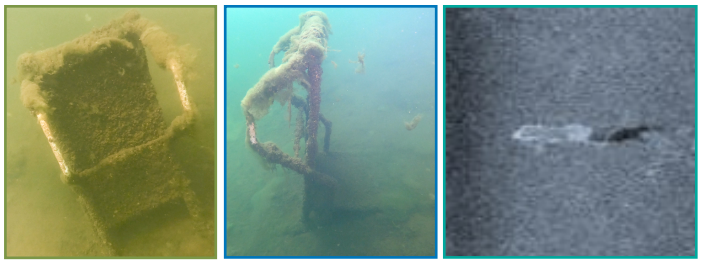
Anomaly 62 is the lower part of a rusted barrel that is 2.00 feet in diameter.

Deck Umbrellas, Anomalies 34, 14



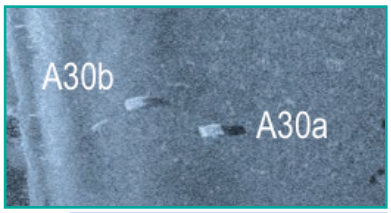
Anomaly 34 is an open white deck umbrella with red and blue stripes that is 7.25 feet in diameter. Anomaly 14 was not dove upon because its acoustical signature has great definition - it is a deck umbrella in the same configuration as Anomaly 34 - open on the lake bottom in shallow water. Anomaly 34's sonar signature was not straight forward and it is in deeper water.

Chaise Lounge, Anomaly 39



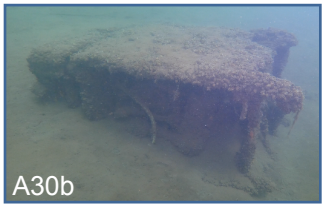
Anomaly 39's acoustical signature suggested it was a rectangle, but its nature could not be determined. It is a Chaise Lounge standing on end, and was blown into the lake from a near-by yard.

Furnace and Washing Machine, Anomalies 30a-30b



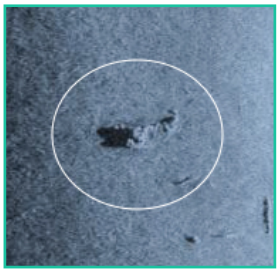
Two large rectangular anomalies were recorded near each other during the sonar survey. Dive reconnaissance determined that Anomaly 30a is a metal furnace and Anomaly 30b is a metal washing machine. MHM contends these appliances were part of the Radisson Inn and after the building's destruction by fire in 1936.

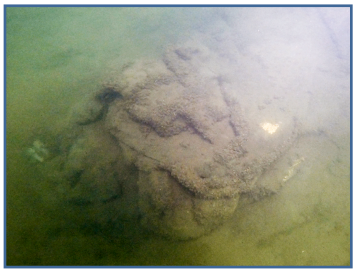




Large Tarp, Anomaly 58

The acoustical signature of Anomaly 58 suggested it was a large stone with sharp edges. After dive reconnaissance, the anomaly has been identified as a large crumpled tarp. It is mostly white with bits of red. The tarp may have been used as part of a hockey rink during the winter or it simply covered something on a dock or at the shoreline.

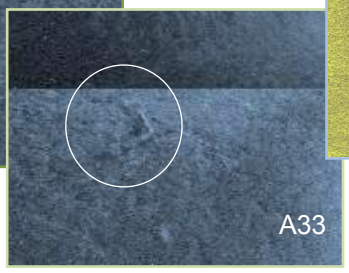


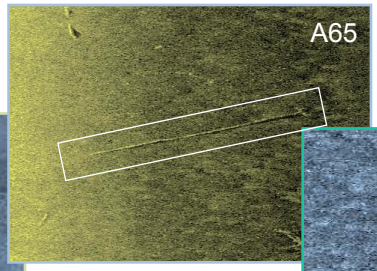


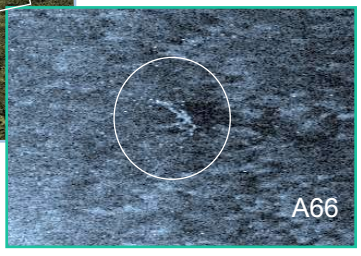
Log, Tree Branches, Anomalies 19, 33, 65, 66

Anomaly 19 is a cut long, Anomalies 33 and 65 are trees, and Anomaly 66 is a collection of tree branches.









Conclusion

The CLSSNA Project produced interesting and significant results, particularly identifying 13 new wrecks, 9 new maritime sites, 7 'other' sites, 2 trees, 1 log, and some branches. These wrecks and sites join dozens of other submerged cultural resources MHM has already identified in several large and small lakes.[3] Comparing and associating these new sites with known sites increases our understanding of the historical context within which these cultural resources operated or were exploited by Minnesotans. The oldest wreck - constructed around 1890 - currently known on the bottom of Christmas Lake, the Wooden Rowboat Wreck (21-CR-169), is nearly buried, and archaeological questions remain about her nature. However, MHM suspects she is flat-bottomed and of a relatively simple design. Further archaeological reconnaissance to determine additional details about the design and construction of 21-CR-169 may occur in the near future. Another of the oldest wrecks, the Flat Bottomed Rowboat Wreck (21-HE-543), exhibits numerous traits that point to its age, such as the roughly-designed port and starboard quarters, the few frames that are thick and rectangular, and the flat bottom. The stones in her hull indicate she was scuttled purposefully after she had outlived her usefulness. Ten other flat bottomed wrecks have been identified by MHM in Lake Johanna, Lake Minnetonka, Lake Pulaski, Medicine Lake, and Prior Lake.[4]

Six wrecks identified during the CLSSNA Project have wineglass transom sterns; MHM contends these watercraft were constructed between 1895-1910. Some or all of the boats may have been part of a Christmas Lake fleet associated with the Glen Morris Inn/Radisson Inn. Interestingly, the oldest example of a wineglass stern wreck in the lake, Wineglass Stern Wreck 4 (21-HE-539), is a hybrid between a simple Fisherman's Friend small flat bottomed watercraft with few rectangular frames, and a detailed wineglass stern boat of complicated design. The next oldest example, the Wineglass Stern Wreck 3 (21-HE-540), is almost completely obscured in silt, but the few traits that can be discerned indicate her frames are thin and numerous, like later boats of this design. The remaining 4 wineglass wrecks, Wineglass Stern Wreck 2 (21-HE-537), Wineglass Stern Wreck 1 (21-HE-535), Wineglass Stern Wreck 6 (21-HE-541), Wineglass Stern Wreck 5 (21-HE-538) identified by MHM in Christmas Lake are similar enough to be referred to as sisters, and were constructed between 1905-1910. These 6 wrecks largely represent the most numerous small recreational watercraft used in Minnesota from around 1890 to about 1925-1930. The advantages of using wineglass stern boats at



People boarding a wineglass stern boat on a Minnesota lake. The postcard was mailed on June 15, 1909, in Onamia (MHM Collection).

[3]Lake Johanna, Lake Minnetonka, Lake Pulaski, Lake Waconia, Medicine Lake, Prior Lake, White Bear Lake

[4]Lake Johanna: 21-RA-85; Lake Minnetonka: 21-HE-485, 21-HE-488, 21-HE-489, 21-HE-499, 21-HE-509; Lake Pulaski: 21-WR-203; Medicine Lake: 21-HE-518; Prior Lake 21-SC-115, 21-SC-116

resorts and hotels lies in their attractive - and elegant - design combined with their functionality as small, maneuverable boats. These watercraft served well as fishing boats for casual and serious anglers, as well as nice rowboats for quiet trips on the lake for families or couples. Four other wrecks of wineglass stern design have been identified by MHM on the bottom of Lake Minnetonka.[5]

Two wrecks constructed around 1920, the Buried Stern Wreck (21-HE-544) and the Alexandria Boat Works Wreck (21-HE-542), represent 'true' fishing boats on the bottom of Christmas Lake. Both boats could have been fitted with small contemporary outboard motors to augment their oar propulsion. These wrecks represent the next generation of small wooden pleasure craft used in Minnesota, after small flat bottomed boats and wineglass stern vessels. Beamy boats with square sterns, and most often carvel-built, were used throughout Minnesota during the mid-20th Century; again, primarily for fishing. MHM has identified 7 wrecks in Lake Minnetonka that are similar to the Christmas Lake examples.[6] Likewise, small square stern steel boats designed primarily for fishing developed alongside the wooden examples, but less of this type made it to the bottoms of lakes. One reason for the rarity of steel wrecks that become submerged archaeological sites is the usefulness of their metal as recycled material. However, 5 of these small American watercraft, identical or similar in design to the Steel Outboard Motor Boat Wreck (21-HE-545) were used in Minnesota - and were scuttled or sank to the bottoms of Lake Pulaski, Prior Lake, and White Bear Lake.[7] Small steel wrecks of different designs to 21-HE-545, but similar in size and identical use have been identified on the bottoms of Lake Johanna, Lake Minnetonka, and Prior Lake.[8] Additionally, MHM has identified numerous examples of aluminum wrecks of similar design and use in Lake Minnetonka, Lake Pulaski, and Medicine Lake.

The 2 largest wrecks currently known on the bottom of Christmas Lake are representative of mid-20th Century wooden gasoline-powered speedboats, runabouts, and cruisers of small to moderate size. These boat types were used as family pleasure craft on every navigable lake in Minnesota from the 1920s to today. The Utility Wreck and Dive Platform Site (21-CR-171), and the Cabin Cruiser Wreck (21-CR-170), not only epitomize Minnesota family boating before - but primarily after - World War 2, they were manipulated by local SCUBA divers to act as teaching tools for underwater navigation and training. To date, MHM has identified wooden runabout, utility, and cruiser wrecks in Lake Minnetonka and White Bear Lake.[9] As more Minnesota wrecks are documented, the changes in watercraft design and construction will more completely fill-out the maritime historical record. The smaller craft on the bottom of Christmas Lake represent over about 130 years of our relationship with historical personal watercraft. The rapid development of the outboard motor set up the proliferation of personal watercraft, made of wood, steel, aluminum, and fiberglass, with 2 of those categories currently known in the lake.

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[5]Lake Minnetonka: 21-HE-415, 21-HE-517, 21-HE-422

[6]Lake Minnetonka: 21-HE-457, 21-HE-469, 21-HE-500, 21-HE-506, 21-HE-513, Anomaly 467, Anomaly 764

[7]Lake Pulaski: 21-WR-206, Anomaly 13; Prior Lake: 21-SC-114; White Bear Lake: 21-WA-114, 21-WA-115

[8]Lake Johanna: 21-RA-83 (a unique corrugated steel wreck); Lake Minnetonka: 21-HE-510, 21-HE-530; Prior Lake: 21-SC-113

[9]Lake Minnetonka: 21-HE-423, 21-HE-424, 21-HE-446, 21-HE-447, 21-HE-467, 21-HE-490, 21-HE-491, 21-HE-492, 21-HE-493 (a rare aluminum hull with a wooden top example), Anomaly 26.1, Anomaly 55

In relation to non-wreck maritime sites in the lake, people have exploited the clear, cold water of Christmas Lake for millennia; examples of this use are obvious and numerous. MHM recorded a large number of these visible features using sonar - the Water Intake sites (Anomalies 12, 22, 35, 56) - that were used by European Americans in post-contact history. The visible evidence of their existence lines the periphery of the entire lake in the form of gouged-out holes created by suction pipes. Every hole is linked to the shoreline and buildings - both present and destroyed - occupied by year-round and seasonal occupants. Other maritime sites identified in Christmas Lake during the 2020 field season - the Capsized Pontoon Raft (Anomaly 6), Marine Railway (Anomaly 3a-3d), and Pontoons (Anomalies 28, 51), like the wrecks, represent recreation and transportation used and then abandoned by the lake's residents over the years. Miscellaneous objects such as the Building Wall (Anomaly 18), Barrel (Anomaly 62), Deck Umbrellas (Anomalies 14, 34), Chaise Lounge (Anomaly 39), the Furnace and Washing Machine (Anomaly 30a-30b), and the Large Tarp (Anomaly 58) are among dozens of objects blown into the lake by strong winds or deposited there by the habit of disposing of unwanted objects on the ice or dumped from boats.

The diversity of nautical, maritime, and underwater sites so far identified in Christmas Lake - after only 1 archaeological season - are tangible examples of the rich maritime history of the area. Through research, diving on wrecks and anomalies to collect pertinent data, and ensuring that the collected information is accessible by the public, MHM will continue to investigate Christmas Lake's submerged cultural resources into the future. The results of the CLSSNA Project summarized above is connected to all the work that will come after its completion. It is clear that the types of sites that exist in Christmas Lake are diverse, archaeologically and historically significant, and worthy of great attention. To date, the watercraft located on the bottom of Christmas Lake represent around 130 years of Minnesota's maritime history and nautical archaeology - and local maritime culture. Lastly, the large and significant data produced during this first Christmas Lake project has and will be used for comparison purposes as MHM identifies wrecks and maritime resources on the bottom of other Minnesota lakes. To date, these bodies of water include White Bear Lake, Lake Waconia, Prior Lake, Lake Johanna, Medicine Lake, and Lake Pulaski, with results pending in Forest Lake, Lake Minnewashta, Lotus Lake, Crystal Lake, and near-by larger Lake Minnetonka.

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